

SYNOPSIS OF THE CHINESE SPECIES OF JASMINUM

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JASMINUM is essentially a tropical or subtropical genus and is found in eastern and southern Asia, Malaysia, Africa, Australia and even tropical America. There are probably over three hundred species recognized in the genus at the present time. In the herbarium of the Arnold Arboretum are represented species from all these regions. However, the region best represented is China. Of the few species not found in this herbarium, photographs of the type specimens were taken by Alfred Rehder on a recent visit to European botanical institutions from which he brought back over 500 photographs of types of Chinese ligneous plants. This gave us a nearly complete representation of the Chinese species of *Jasminum* and made possible the present study.

Since the time of Linnaeus there has been made only one attempt toward a complete representation of the genus; this was published in 1844 by A. P. De Candolle (Prodr. viii. 300-316). Of the Chinese species three enumerations were published, namely by Hemsley, Léveillé and Chung.

W. B. Hemsley (Enumeration of all the Plants known from China proper, Formosa, Hainan, the Corea, the Luchu Archipelago and the Island of Hongkong) in Jour. Linn. Soc. xxvi. 78-82 (1889) recognized fifteen species. H. Léveillé in handling his "Jasmina Sinensia" in Fedde, Rep. Nov. Spec. xiii. 149-150 (1914) mentions thirty-three species in his key while H. H. Chung publishing a "Catalogue of Trees and Shrubs of China" in Mem. Sci. Soc. China, i. no. 1 (1924) lists 27 species and two varieties.

As already mentioned in this paper there are over three hundred species. Early in the study we thought that most of these species were distributed in southeastern Asia and Malaysia and that here probably was the main center of distribution of the genus. However, in careful listing of all species of the genus as recognized by "Index Kewensis" we discovered that while there were approximately one hundred species of *Jasminum* found in China (especially south-west) and the Himalayan region of India there were about the same number of species found in Malaysia and about one hundred twenty species in Africa. Besides these numbers there is a sprinkling of a few species in Australia, Polynesia and tropical America. All together this makes the genus pan-tropical with a possible center of distribution found in the area including Malaysia, the Himalayas and China.

These numbers have been taken from species recognized by the Index Kewensis. Incidentally, of the fifty-six species belonging within the scope of this study approximately one-half turned out to be synonyms. No new species was found among the unidentified material either at the Arnold Arboretum or the material borrowed from other institutions. This may intimate that since *Jasminum* is composed mostly of such interesting and decoratively beautiful shrubs that the majority of species were found early by plant collectors and described at that time. It is evident that later botanists encountering some of these already described new species for the first time, lacking both material with which to compare them and literature, also have described several of the outstandingly distinct species a second and even a third time. At present, when the material (types or photographs of types) was brought together for the first time it was positively amazing to find the species duplications which had taken place.

One cannot be positive but it seems quite logical to assume that the same situation may be found in a study of *Jasminum* from any other distinct locality. This would decrease the number of recognized species considerably.

The genus is botanically separated quite easily into four distinct sections; the sections being based on leaf characters. These sections were all introduced by DeCandolle in his *Prodromus*. The *Alternifolia* group with alternately arranged leaves is perhaps the most outstandingly different. It contains five species and varieties. The opposite-leaved sections are three, namely: *Unifoliolata* (13 species); *Trifoliolata* (9 species and varieties); *Pinnatifolia* (5 species and varieties). The delimiting characters of these groups can easily be ascertained from their significant names.

In addition to the material in the herbarium of the Arnold Arboretum, photographs of types were secured and loans of material obtained from the herbaria of the New York Botanic Garden, the Philippine Bureau of Science, Gray Herbarium of Harvard University, Royal Botanic Garden at Edinburgh, British Museum of Natural History and Royal Botanic Gardens at Kew. Opportunity is taken at this time by the author to express his gratitude to all members of these institutions mentioned above who aided in photographic work or selection of the specimens loaned. Especial thanks are due Mr. Alfred Rehder, Curator of the Herbarium, for the suggestion of the problem and for the ever kind and helpful interest which has been shown me at all times during the progress of this work.

The abbreviations of the herbaria used in this paper are as follows:

- (AA) = Arnold Arboretum of Harvard University
 (B) = British Museum of Natural History
 (Br) = University of Breslau
 (C) = University of California
 (E) = Edinburgh, Royal Botanic Garden
 (G) = Gray Herbarium of Harvard University
 (K) = Kew, Royal Botanic Gardens
 (NY) = New York Botanical Garden
 (P) = Philippine Bureau of Science

KEY TO THE SERIES

- A. Leaves alternately arranged. 1. *ALTERNIFOLIA*
 AA. Leaves opposite in arrangement.
 B. Leaves compound.
 C. Leaves trifoliolate 2. *TRIFOLIOLATA*
 CC. Leaves five-foliolate or more. 3. *PINNATIFOLIA*
 BB. Leaves simple 4. *UNIFOLIOLATA*

Series 1. *ALTERNIFOLIA* DC.

- A. Calyx teeth subulate-setaceous, longer than calyx-tube.
 B. Leaves and plant glabrous. 1. *J. floridum*
 BB. Leaves puberulous. 2. *J. Giraldui*
 AA. Calyx lobes shorter than calyx-tubes, diminutive or obtuse.
 B. Leaves both simple and ternate; leaflets 5-8 cm. long; inflorescence
 30-50-flowered, corymbs 7-12 cm. across.
 C. Calyx lobes and pedicels glabrous.
 3a. *J. heterophyllum* var. *glabricorymbosum*
 CC. Calyx lobes and pedicels villous.
 3b. *J. heterophyllum* var. *subhumile*
 BB. Leaves only ternate or pinnate; leaflets 1.5-3.5 cm. long; inflorescence
 3-8 flowered. 4. *J. humile*

—1. *Jasminum floridum* Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. II. 116 (Enum. Pl. China Bor. 42) (1833).—DeCandolle, Prodr. VIII. 313 (1844).—Nicholson, Ill. Dict. Gard. II. 207 (1877).—Miquel in Ann. Mus. Ludg.-Bat. II. 263 (1866); Prol. Fl. Jap. 151, 359 (1866-67).—Franchet & Savatier, Enum. Pl. Jap. I. 314 (1875).—Hooker f. in Bot. Mag. cix. t. 6719 (1883).—Hemsley in Jour. Linn. Soc. XXVI. 78 (1889).—Diels in Bot. Jahrb. XXIX. 534 (1900).—Schneider, Ill. Handb. Laubholzk. II. 839, figs. 527h-i, 528a (1911).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Rehder in Sargent, Pl. Wilson. II. 614 (1916); Man. Cult. Trees Shrubs, 765 (1927).—Chung in Mem. Sci. Soc. China, I. no. 1, 216 (1924).

Jasminum subulatum Lindley in Bot. Reg. XVIII. misc. notes, 57 (1842).—DeCandolle, Prodr. VIII. 312 (1844).

Jasminum floridum Bunge (var. *spinescens* Diels in Bot. Jahrb. XXIX. 534 (1901).—Syn. nov.

Jasminum Argyi Léveillé in Mem. Acad. Ci. Art. Barcelona, XII. no. 22, 17 (1916).—Syn. nov.

C h i h l i : Peking, *C. A. Skatchkov* (1848–1857) (G). K i a n g - s u : Le kien, *Ch. d'Argy*, May (1846–66) (AA, type of *J. Argyi*); Nanking, *L. F. Tsu*, no. 629, May 19, 1921 (C). W e s t e r n H u p e h : north and south of Ichang, alt. 300–700 m., *E. H. Wilson*, no. 789 in part, June and December 1907 (bush 1 m. tall; flowers yellow; fruit black) (AA, G); open, grassy slopes, Ichang, *W. Y. Chun*, no. 3468, July 20, 1922 (bush 1 m. high; flowers yellow) (AA); thickets, Hsing-shan hsien, alt. 600 m., *E. H. Wilson*, no. 789 in part, June 1907 (AA); moist shady cliff, Gian Gia-kou, *W. Y. Chun (Huang Tsung)*, no. 3572, July 27, 1922 (shrub 1–2 m.; leaves dull green above; flowers yellow) (AA); without precise locality, *E. H. Wilson* (Veitch Exped. no. 83) April 1900 (AA, NY); without precise locality, *A. Henry*, nos. 2700 (NY, G) and 6288 (AA, NY). K a n s u : near Kua tsa, *F. N. Meyer*, no. 1817, Nov. 5, 1914 (C). W e s t e r n S z e c h u a n : Nanch'uan, Fu pei tsui, *C. Bock* and *A. von Rosthorn*, no. 1151, Oct. 1891 (photo. and fragment of holotype of *J. floridum* var. *spinescens*) (AA); Nanch'uan, Taho-kou, *C. Bock* and *A. von Rosthorn*, no. 163, July 1891 (AA); side of river, Nanchuan hsien, alt. 1525–1830 m., *W. P. Fang*, no. 788, May 15, 1928 (shrub 1 m.; flowers yellow) (AA, NY); side of brook, Sungpan hsien, *W. P. Fang*, no. 4239, August 17, 1928 (shrub 2–3 m.; flowers yellow) (AA, NY).

In comparing *J. Argyi* Léveillé with material of *J. floridum* Bunge, no differences warranting specific delimitation could be found, nor does *J. floridum* var. *spinescens* Diels seem to be different enough from typical *J. floridum* to be maintained as a distinct variety.

2. **Jasminum Giraldii** Diels in Bot. Jahrb. XXIX. 534 (1901).—Pampanini in Nuov. Giorn. Bot. Ital. n. ser. XVII. 689 (1910).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Bailey, Standard Cycl. Hort. 1719 (1915).—Rehder in Sargent, Pl. Wilson. II. 614 (1916); Man. Cult. Trees Shrubs, 765 (1927).—Chung in Mem. Sci. Soc. China, I. no. 1, 216 (1924).

Jasminum tsinlingense Lingelsheim in Fedde, Rep. Spec. Nov. Beih. XII. 463 (1922).—Syn. nov.

S h e n s i : King lung shan, alt. 900 m., *J. Hers*, no. 2440, Oct. 9, 1922 (AA); In kia p'u, *G. Giraldi*, no. 1518, August 1897 (fragment of syntype from Herb. Mus. Berlin) (AA); Huo kia zaez, at foot of Lao y huo, *G. Giraldi*, no. 1519 (photograph of syntype in Herb. Mus. Berlin) (AA); same locality, June 4, 1897, *G. Giraldi* (AA); northwest of Hangcheng hsien, *W. Purdom*, no. 368, date lacking (1 m. high; flowers yellow) (AA); Tai-pe-shan, *W. Purdom*, nos. 907 and 908, in 1910 (AA); at foot of mts. at Schian gou, south Hsian fu, Tsin ling shan, alt. 500 m., *W. Limpricht*, no.

2689 (photograph and fragment of type of *J. tsinglingense* from Br. in AA). H u p e h : dry rocky places, Fang hsien, alt. 1000 m., *E. H. Wilson*, no. 598, May 23, and Nov. 1907 (abundant; 1–2 m.; flowers deep yellow; fruit black) (AA, G, NY, C).

Lingelsheim's species *Jasminum tsinglingense* is undoubtedly synonymous with *J. Giraldui* Diels.

3a. *Jasminum heterophyllum* Roxb. var. *glabricorymbosum* W. W. Smith in Notes Roy. Bot. Gard. Edinburgh, xii. 209 (1920).

Y u n n a n : on ledges of limestone cliffs, on Langhong—Hoching divide, lat. 26° 16' N., alt. 2440 m., *G. Forrest*, no. 9990, May 1913 (shrub 2–3 m.; flowers deep golden yellow, fragrant) (AA); in open situations by streams, Yungpe mountains, lat. 26° 45' N., alt. 2740 m., *G. Forrest*, nos. 11037 (NY), 11177 (C), and 11472, Sept.–Oct. 1913 (erect shrub 2–2.5 m.; fruit black) (AA); Mengtze woods, alt. 1475–1525 m., *A. Henry*, nos. 9107, 9107A and 9107B (slender shrubs 2–2.5 m.; flowers yellow; fruit black) (AA, NY); forests, Ta Song pin, *Simeon Tén*, no. 99, March 26, 1916 (tree 3 m.; flowers yellow) (AA); eastern slopes of Likiang Snow Range, Yangtze watershed, Prefectural District of Likiang, *J. F. Rock*, nos. 3879, 3955, May–Oct. 1922 (shrub 2–2.5 m.; flowers orange-yellow) (AA, NY); mountains south of Likiang Sungkwe Hochin Range, *J. F. Rock*, no. 8292 in 1923 (shrub 1.5–2 m.; flowers yellow) (AA); western slope of Likiang Snow Range, Yangtze watershed, *J. F. Rock*, no. 8539 April 1923 (shrub 3 m.; drooping yellow flowers) (AA); banks of Djiper Ka Ku stream, near Ngaza, drainage basin of the Yangtze, west of Likiang, *J. F. Rock*, no. 10602, in 1923 (shrub 1 m.) (AA); Shweli River drainage basin and environs of Tengyueh, *J. F. Rock*, no. 8033, February 1923 (shrub 1.2–2 m.; flowers citron-yellow) (AA); headwaters of the Red River or Menghuaho from Maokai to Tatsang, alt. 1675 m. *J. F. Rock*, no. 3026, April 8, 1922 (flowers yellow) (AA).

3b. *Jasminum heterophyllum* Roxb. var. *subhumile* (W. W. Smith), comb. nov.

Jasminum subhumile W. W. Smith in Notes Bot. Gard. Edinb. viii. 127 (1913).

Y u n n a n : moist open situation in the Sha-Yang valley, lat. 25° 20' N., alt. 1830 m., *G. Forrest*, no. 5529, April 1910 (flowers orange-yellow, fragrant) (E, type of *J. subhumile*); open situation in the Pu-piao valley, lat. 25° '5 N., alt. 1830–2135 m., *G. Forrest*, no. 9873, May 1913 (shrub 1.5–3 m.; flowers deep golden yellow, fragrant) (AA, C).

This variation of *J. heterophyllum* was originally described as *J. subhumile*. However, it differs from *J. heterophyllum* only in

its densely villous pubescence found on the calyx and pedicels. The pubescence on *J. heterophyllum* is of a puberulent nature. It is interesting to find these two extreme variations, namely the present villous variety along with the glabrous variety mentioned before both growing in China, while the typical species has been found only in the Himalayan region.

4. *Jasminum humile* Linnaeus, Spec. Pl. i. 7 (1753).—Aiton, Hort. Kew. i. 9 (1789).—Ker in Bot. Reg. v. t. 350 (1819).—St. Hilaire, Pl. France, ii. t. 110 (1808); Traité Arbriss. & Arbustes, ii. t. 90 (1825).—DeCandolle, Prodr. viii. 313 (1844).—Clarke in Hooker f., Fl. Brit. Ind. iii. 602 (1822).—Nicholson, Illustr. Dict. Gard. ii. 207 (1887).—Dippel, Handb. Laubholzk. i. 146, fig. 91 (1889).—Bailey, Cyclop. Amer. Hort. ii. 843, fig. 1191 (1900); Stand. Cyclop. Hort. iii. 1719, fig. 209 (1915).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 149 (1914).—Brandis, Ind. Trees, 452 (1906).—Schneider, Ill. Handb. Laubholzk. ii. 840 (1911).—Rehder in Sargent, Pl. Wilson. ii. 615 (1916); Man. Cult. Trees Shrubs, 765 (1927).—Chung in Mem. Sci. Soc. China, i. no. 1, 216 (1924).—Boynton in Addisonia, xii. 55, pl. 412 (1927).

Jasminum chrysanthemum Roxburgh, Cat. Hort. Beng. 3 (1814), nomen; Fl. Ind. i. 98 (1820).

Jasminum revolutum Sims in Bot. Mag. xlii. t. 1731 (1815).—Ker in Bot. Reg. iii. t. 178 (1817); vi. notes 2 (1820).—Loddiges in Bot. Cab. x. t. 966 (1824).—D. Don, Prodr. Fl. Nepal. 106 (1825).—De Candolle, Prodr. viii. 313 (1844).—Wight, Icon. Pl. Ind. Orient. iv. 14, t. 1258 (1850).—Brandis, Forest Fl. Brit. Ind. 313 (1874).—Boissier, Fl. Orient. iv. 42 (1879).—Dippel, Handb. Laubholzk. i. 148, fig. 93 (1889).—Schneider, Ill. Handb. Laubholzk. ii. 839, figs. 527 m-n, 528 g-i (1911).

Jasminum bignoniaceum Wallich, Cat. No. 2888 (1829), nomen nudum.—G. Don, Gen. Syst. iv. 63 (1838).—DeCandolle, Prodr. viii. 313 (1844).

Jasminum Wallichianum Lindley in Bot. Reg. xvii. t. 1409 (1831).—Schneider, Ill. Handb. Laubholzk. ii. 839, figs. 527 k-l, 528 d-f (1911).

Jasminum inodorum Jacquemont apud Decaisne in Jacquemont, Voy. iv. 139. t. 143 (1844).—DeCandolle, Prodr. viii. 312 (1844).

Jasminum Mairei, Léveillé in Fedde, Rep. Spec. Nov. xiii. 337 (1914).—Syn. nov.

Jasminum Mairei Léveillé var. *siderophyllum* Léveillé, Cat. Pl. Yun-nan, 179 (1916).—Syn. nov.

K a n s u : L o w e r T e b b u c o u n t r y : slopes along gorge of Chulungapu, alt. 1980 m., *J. F. Rock*, no. 15035, Sept.–Oct. 1926 (shrub 1–1.7 m.; flowers yellow; fruit black) (AA); dry arid slopes with Oaks in Nyibaku, alt. 1900 m., *J. F. Rock*, no. 14797, Sept. 9, 1926 (shrub 1–1.5 m.; flowers rich yellow) (AA); outskirts of forests along stream in Wantsang valley, alt. 2135–2200 m., *J. F. Rock*, no. 14653, Aug. 31, 1926 (shrub 1–1.5 m.) (AA). W e s t e r n S z e c h u a n : descent of Hsao-chin-lo, Monkong Ting,

alt. 2300–3000 m., *E. H. Wilson*, no. 2809, June 1908 (bush 1–2 m. tall; flowers yellow) (AA); dry arid places, Maochou, alt. 1300–1600 m., *E. H. Wilson*, no. 2811, May 24, 1908 (bush 0.3–2 m. tall; flowers yellow) (AA); in dumetis mont., inter Kalapo et Linku, alt. 3000 m., *C. K. Schneider*, no. 1302, May 17, 1914 (AA); inter Huale et Mo lien, alt. 2600 m., *C. K. Schneider*, no. 4091, May 25, 1914 (AA); Teng-hsiang-ying, alt. 2100 m., *Harry Smith*, no. 1890, May 20, 1922 (in prato fruticoso-herboso) (AA); inter Wen-ch'uan-hsien et Hsin-p'u-kuan, alt. 1300 m., *Harry Smith*, no. 2463, June 28, 1922 (flor. sulphurei) (AA); without exact locality, alt. 3000–3300 m., *E. H. Wilson* (Veitch Exped. no. 4077) June 1904; alt. 2300 m., *E. H. Wilson* (Veitch Exped. no. 4078) August 1903 (AA). Y u n n a n : high plateau between Talifu and Likiang to the foot of the Likiang Snow Range, *J. F. Rock*, no. 3293, May 6–11, 1922 (shrub; flowers yellow) (AA); about Pe Yen tsin, *Simeon Tén*, no. 515, June 18, 1918 (shrub 1–2 m.) (AA); Pin tchoan kai, about Pe Yen tsin, *Simeon Tén*, no. 375, May 15, 1917 (spreading shrub 1–2 m.; flowers yellow) (AA); open situation on arid foothills of eastern flank of Bei-ma Shan, lat. $28^{\circ} 12' N.$, alt. 3050 m., *G. Forrest*, no. 13832, June 1917 (shrub 1–2 m.; flowers deep golden yellow) (AA); vallons de Suen-oui, alt. 2400 m., *E. E. Maire* (AA, no. 451), July (arbrisseau buissonnant; fleurs jaunes) (AA); vallée de Gui-ma-tong, alt. 2500 m., *E. E. Maire* (AA, no. 245) May (arbuste buissonnant non grimpant; fleurs jaunes) (AA); open situation in mixed and pine forests on the eastern flank of the Tali Range, lat. $25^{\circ} 40' N.$, alt. 2440–3050 m., *G. Forrest*, no. 4659, June–August 1906 (shrub 1–2 m., flowers orange-yellow, fragrant) (AA); in calcareous mountains, region of Yunnan fu, alt. 2200 m., *O. Schoch*, no. 36 (AA); in hedges near Hoching, alt. 2500 m., *C. K. Schneider*, no. 3264, Sept. 26, 1914 (AA); in thickets near streams at foot of mountain near Lichiang, alt. 3000 m., *C. K. Schneider*, no. 3222, Oct. 6, 1914 (AA); haut plateau de Tai hai, alt. 3200 m., *E. E. Maire*, July (1911–13) (arbuste buissonnant; haut 0.60 m.; fleurs roses) (AA); pâturages des montagnes à Pe-ling-tsin, alt. 3200 m., *E. E. Maire*, May (1911–13) (buissonnant, haut 0.60 m.; fleurs jaunes, inodores) (AA). S o u t h e a s t T i b e t : open scrub by streams on the Salween-Kiu-chiang divide, Tsarong, lat. $28^{\circ} 40' N.$, long. $98^{\circ} 15' E.$, alt. 2135–2440 m., *G. Forrest*, no. 18927, September 1919 (shrub 1–2 m.) (AA); amongst rocks on dry stony slopes in side valleys on the Salween-Kiu-chiang divide, Tsarong, lat. $28^{\circ} 40' N.$, long. $98^{\circ} 15' E.$, alt. 2440 m., *G. Forrest*, no. 19251, September 1919 (shrub 0.5 m.) (AA).

In examining the Indian along with the Chinese material, one, at first, is impressed with the seeming differences and inclined to recognize the species *J. revolutum* Sims and *J. Wallichianum* Lindley as distinct from *J. humile* L. This separation would be based on the larger, more numerous and rather obtuse leaflets of the Indian material as compared with the small, acute, and lesser numbered leaflets of the Chinese species. The number of flowers in the inflorescence of the Himalayan material is greater (usually 8–10) as contrasted with the usual 3–5-flowered inflorescence of the Chinese specimens. On careful study of the massed material, however, one finds a sufficiently distinct gradation or variation in all the characters mentioned making it difficult to recognize anything other than a single, very variable species, *J. humile*.

Series 2. TRIFOLIOLATA DC.

- A. Calyx lobes foliaceous.
 - B. Leaves persistent, coriaceous, present at time of flowering
5. *J. Mesnyi*
 - BB. Leaves deciduous; flowers appearing before leaves.
 - C. Plants erect or scandent; simply branched.
 - D. Leaves uniformly green.....6. *J. nudiflorum*
 - DD. Leaves variegated or entirely yellow..6a. *J. nudiflorum* f. *aureum*
 - CC. Plants pulvinate; intricately ramose.
6b. *J. nudiflorum* var. *pulvinatum*
- AA. Calyx lobes quite vestigial or subulate when present.
 - B. Leaves palmately tri-nerved.
 - C. Branchlets and leaves glabrous.....7. *J. urophyllum*
 - CC. Branchlets and leaves puberulent..7a. *J. urophyllum* var. *Wilsonii*
 - BB. Leaves pinnately veined.
 - C. Leaves and branches glabrous.....8. *J. lanceolarium*
 - CC. Leaves and branches pubescent.
 - D. Calyx lobes quite vestigial; terminal leaflets same size or only slightly larger than lateral leaflets
8a. *J. lanceolarium* var. *puberulum*
 - DD. Calyx lobes subulate-setaceous; terminal leaflets markedly longer than lateral leaflets.....9. *J. sinense*

5. **Jasminum Mesnyi** Hance in Jour. Bot. xx. 37 (1882).—Hemsley in Jour. Linn. Soc. London, xxvi. 79 (1889).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Jasminum primulinum Hemsley apud Baker in Kew Bull. Misc. Inform. 1895, p. 109; apud Oliver in Hooker, Ic. Pl. xxiv. t. 2384 (1895).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Bailey, Stand. Cyclop. Hort. iii. 1718 (1915).—Chung in Mem. Sci. Soc. China, i. 216 (1924).—Rehder, Man. Cult. Trees Shrubs, 764 (1927).—Syn. nov.

Y u n n a n : between Szemao and Nakoli, *J. F. Rock*, no. 2829, March 13, 1922 (shrub with straggling branches; flowers yellow) (AA); mountains near Szemao, alt. 1525 m., *A. Henry*, no. 9319A (straggly shrub with yellow flowers) (AA, C); brousse de montagne à Siao-long-tan, alt. 2600 m., *E. E. Maire*, AA, no. 199, April?

(arbuste en touffes, long rameaux verts; fleurs jaunes, simples ou doubles) (AA); dumetis ad vicum Dschung-duilung, prope urbem Yunnanfu, alt. 2000 m., *H. Handel-Mazzetti*, no. 8613, February 7, 1916 (flores flavi) (AA); an Bahn bei Yi leang hien, *C. K. Schneider*, no. 32, Feb. 5, 1914 (AA); westlich von der Yangtze Fähre, La ka tiang, *C. K. Schneider*, no. 486, March 19, 1914 (niederliegender sparriger Strauch) (AA); Mengtze, alt. 1370–1525 m., *A. Henry*, no. 9319 (shrub 1 m., flowers yellow) (AA, NY); amongst scrub, hills to the south of Tengyueh, lat. 25° N., alt. 1830 m., *G. Forrest*, no. 9744, March 1913 (shrub 1.5 m.; flowers bright golden yellow) (AA); dry rocky situation on the Langkong-Hoching divide, lat. 26° 16' N., alt. 2440–2740 m., *G. Forrest*, no. 9955, May 1913 (shrub 0.5–1.0 m., flowers golden yellow) (AA); Yunnan fu, in fruticetis, alt. 1900 m., *Harry Smith*, no. 1583, August 4, 1922 (AA); precise locality and date lacking, *F. Ducloux*, nos. 165, 7175 (NY). Kweichow: prope Mei-chu-chin, alt. 1830 m., *W. Mesny* (Hance herb. no. 21211), April 11, 1880, (B, type), photo. of type (AA).

Unfortunately in describing *J. primulinum*, Hemsley (1895) was not aware of *J. Mesnyi* described by Hance in 1882. Since Hemsley's time this species has been known generally as *J. primulinum* instead of the earlier name *J. Mesnyi*.

J. Mesnyi seems to be the southern counterpart of *J. nudiflorum*. It is difficult to find sound morphological characters for specific delimitation. *J. nudiflorum* is confined (spontaneously) to N. China and is characterized by deciduous leaves and precocious flowers with the corolla tube longer than the spread of its lobes. *J. Mesnyi*, on the other hand, is usually found in Yunnan and differs from *J. nudiflorum* in having evergreen leaves and larger, usually double flowers with the corolla-lobe spread greater than the length of the tube.

6. *Jasminum nudiflorum* Lindley in Jour. Roy. Hort. Soc. London, i. 153 (1846); Bot. Reg. xxxii. t. 48 (1846); Bot. Mag. lxxviii. t. 4649 (1852).—Walpers, Repert. Bot. Syst. vi. 463 (1846–47).—Franchet, Pl. David. i. 206 (1884).—Hemsley in Jour. Linn. Soc. London, xxvi. 79 (1889).—Schneider, Ill. Handb. Laubholzk. ii. 837 (1912).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Bailey, Stand. Cyclop. Hort. iii. 1718 (1915).—Chung in Mem. Sci. Soc. China, i. 216 (1924).—Rehder, Man. Cult. Trees Shrubs, 764 (1927).

Jasminum angulare Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. ii. 116 (Enum. Pl. China Bor. 42) (1833).—Non Vahl.

Jasminum Sieboldianum Blume, Mus. Bot. Ludg.-Bat. i. 280 (1850).

S h a n s i : Yun-cheng, Chung-t'iao-shan, in prato aprico, *Harry Smith* (*Ssii Ho*), no. 5508, July 1924 (AA). S h a n t u n g : Tsingtao, *R. Zimmermann*, no. 296 in 1901 (AA); along sandy slope under partial shade, Tsingtao, alt. 100 m., *C. Y. Chiao*, no. 2583, June 19, 1930 (bushy vine, ornamental for stone walls) (AA).

6a. *Jasminum nudiflorum* Lindley f. *aureum* Dippel, Handb. Laubholzk. I. 145 (1889), as var.—Schneider, Ill. Handb. Laubholzk. II. 837 (1912), as var.

J. nudiflorum Lindley var. *variegatum* Mouillefert, Arbres Arbriss. II. 1008 (1897).

Hort. L. Spaeth, Baumschulen, Berlin, Aug. 8, 1926 (leaves yellow, green and variegated); same location, *H. Jensen*, in flower, March 21 (1927).

6b. *Jasminum nudiflorum* Lindley var. *pulvinatum* (W. W. Smith), comb. nov.

Jasminum pulvinatum W. W. Smith in Notes Roy. Bot. Gard. Edinb. XII. 209 (1920).

S . E . T i b e t : in open dry situations on cliffs, prov. of Tsarong, on Doker-la, Mekong-Salween divide, lat. $28^{\circ} 20' N.$, alt. 2740–3050 m., *G. Forrest*, no. 14478, July 1917 (cushion shrub of 0.25–0.5 m.; flowers golden yellow) (AA). N . W . Y u n n a n : mountains of Londjre, Mekong-Salween watershed adjoining southeastern Tibet, *J. F. Rock*, no. 8896, May 1923 (shrub 0.25–0.5 m. often prostrate; flowers large rich yellow) (AA, NY); on open moorland, eastern flank of the Bei-ma Shan, lat. $28^{\circ} 12' N.$, alt. 4250–4500 m., *G. Forrest*, no. 13834, July 1917 (stunted, almost spinous shrub, 0.25 m.; flowers bright yellow) (AA); dry situations in ravines in the Salween valley, lat. $28^{\circ} 10' N.$, alt. 2440 m., *G. Forrest*, no. 16193, April 1917 (shrub 0.75–1.5 m.; flowers precocious, bright yellow) (AA); stony pasture and on cliffs on the Bei-ma Shan, lat. $28^{\circ} 18' N.$, long. $99^{\circ} 10' E.$, alt. 3650–3950 m., *G. Forrest*, no. 19666, July 1921 (matted cushion shrub of 0.3–0.75 m; flowers yellow) (AA); on ledges of dry cliffs and rocky slopes in the Atuntze valley, lat. $28^{\circ} 32' N.$, long. $98^{\circ} 48' E.$, alt. 2740–3050 m., *G. Forrest*, no. 20004, August 1921 (stunted shrub 0.3–0.75 m. forming cushions; flowers bright yellow) (AA).

This stunted variety of *J. nudiflorum* Lindl. found growing, as far as is known at present, only in the mountainous regions of N. W. Yunnan and adjacent S. E. Tibet varies from the species *J. nudiflorum* in the cushion like habit and densely intricate branching. It is solely an alpine equivalent of *J. nudiflorum* and not worthy of specific rank.

7. *Jasminum urophyllum* Hemsley in Jour. Linn. Soc. Bot. XXVI. 81 (1889).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 150 (1914).—

Rehder in Sargent, Pl. Wilson. II. 613 (1916).—Chung in Mem. Sci. Soc. China, I. 217 (1924).

Szechuan: Mt. Omei, alt. 1525 m., *Ernst Faber*, no. 47 (flowers yellow) (NY, isotype); in thickets, Kuan hsien, alt. 900–1080 m., *W. P. Fang*, no. 2196, July 14, 1928 (woody vine; flowers white) (AA, NY); in thickets near Mt. Wa, alt. 900 m., *E. H. Wilson*, no. 1122, Oct. 1908 (climber, 2 m.; flowers white) (AA).

An annotation found on the sheet of the type specimen of this species refers to the flowers as yellow. In view of the facts that all other specimens of this species and its variety possess white flowers and that the plant at time of collection from which the type specimen was gathered was evidently nearly past the flowering condition, I feel that, probably, the original specimen possessed white flowers which, because of their aged condition, were termed yellow.

J. urophyllum is closely allied to the Indian *J. dispernum* Wall. in its white flowers, ternately-veined leaflets and calyx characters. However, the two lateral veins in *J. urophyllum* pass well beyond the center toward the apex of the leaf before anastomosing with the small veinlets from the midrib while in the case of *J. dispernum* the veins anastomose well below the center of the leaf. Also the leaves of *J. dispernum* are more vigorous, 5-foliolate and coarser in texture while those of *J. urophyllum* are narrowed and more attenuated, 3-foliolate and finer in texture.

7a. *Jasminum urophyllum* Hemsley var. *Wilsonii* Rehder in Sargent, Pl. Wilson. II. 613 (1916).—Chung in Mem. Sci. Soc. China, I. 217 (1924).

Jasminum urophyllum Hemsley var. *Henryi* Rehder in Sargent, Pl. Wilson. II. 613 (1916).—Chung in Mem. Sci. Soc. China, I. 217 (1924).—Syn. nov.

W. Szechuan: cliffs, *E. H. Wilson*, Veitch Exp. no. 4075, July 1903 (shrub 0.6 m. high; flowers white) (AA, type). W. Hupeh: Mt. Changyang, *E. H. Wilson*, Veitch Exp. no. 1499, July 1900 (climber with white flowers) (AA, NY; paratype of var. *Henryi*); Yunnan: on and amongst scrub, divide between the Shweli and Tengyueh valleys, lat. 25° N., alt. 2135 m., *G. Forrest*, no. 8136, June 1912 (scandent shrub 1.5–4.5 m.; flowers, interior ivory-white, exterior flushed rose-crimson, fragrant) (AA).

This variety of *J. urophyllum* is quite distinct and easily recognized from the typical species because of the absence of the pubescent character so prominent in *J. urophyllum*. The variety *J. urophyllum* var. *Henryi* cannot be clearly distinguished from var. *Wilsonii* and was evidently described from rather sparse material.

8. *Jasminum lanceolarium* Roxburgh, Fl. Ind. i. 97 (1820).—DeCandolle, Prodr. viii. 310 (1844).—C. B. Clarke in Hooker f., Fl. Brit. Ind. iii. 601 (1882).—Hemsley in Jour. Linn. Soc. xxvi. 78 (1889).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Rehder in Sargent, Pl. Wilson. ii. 612 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Jasminum paniculatum Roxburgh, Fl. Ind. i. 97 (1820).—Ker in Bot. Reg. ix. t. 690 (1823).—DeCandolle, Prodr. viii. 310 (1844).—Bentham in Fl. Hongkong, 216 (1861).—Hemsley in Jour. Linn. Soc. xxvi. 80 (1890).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).—Syn. nov.

Jasminum discolor Franchet in Nouv. Arch. Mus. Paris, sér. 2, x. 59 (1888).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).—Syn. nov.

Jasminum pachyphyllum Hemsley in Jour. Linn. Soc. xxvi. 79 (1890).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).—Syn. nov.

A n h w e i : in open thickets, E. Wu Yuan, alt. 540 m., *R. C. Ching*, no. 3312, September 4, 1925 (strong, tough climber, 15 m.; bark dark gray, green above, fruit greenish, rounded) (AA). K i - a n g s i : shady valley near stream, Ting-Nan hsien, alt. 690 m., *H. H. Hu*, no. 1065, June 5, 1921 (vine with white flowers) (AA). K w a n t u n g : Lantau Island (native collector ex *C. Ford*) May 11, 1888 (AA, photo. of type of *J. pachyphyllum*); Hongkong, *C. Ford*, Nov. 22, 1893 (AA); precise locality lacking, *C. Ford*, August 9, 1895 (NY); Hongkong, *C. Wright*, in 1853–1856 (NY); Teng Woo Mt., *C. O. Levine and G. W. Groff*, no. 163, Nov. 18, 1916 (C); same locality, *C. O. Levine*, no. 3107, Sept. 22, 1918 (AA); Loh Fan Mountain, *E. D. Merrill*, no. 10693, August 9–27, 1917 (C, NY); Wong Nei Chong, Hongkong, *Y. Tsiang*, no. 3005, August 1929 (NY); Wukantin, Hongkong, New Territory, *Y. Tsiang*, no. 2970, August 1929 (NY); Tai-O, *Y. K. Wang*, no. 3206, August 1929 (NY); Tai-P, Hongkong, New Territory, *Y. K. Wang*, no. 3219, August (1929) (NY); open scrub, Tai-O, *W. Y. Chun*, no. 3088, August 17, 1929 (scandent shrub; leaves lustrous green; flowers yellow?) (NY); dense woods in partial shade, Sha-ting, Hongkong, *W. Y. Chun*, no. 6911, December 3, 1928 (scandent) (NY); dense woods, side of trail, Forestry Road above Bowen Road, Hongkong, *W. Y. Chun*, no. 7470, September 11, 1929 (scandent shrub; branches purple; leaves deep, dull green above, pale yellow green beneath; flowers white) (NY); Lan Tau Island, *Tsang Wai Tak*, no. 16718 (C); prope vicum Fotsaogai in medio inter urbes Kanton et Lienping situm, alt. 400 m., *R. Mell*, no. 62, Jan. 2, 1920 (scandens; fr. lignosi brunnei) (AA). K w a n g - s i : 15 li south of Nee Bai, border of Kweichou, *R. C. Ching*, no. 6282, June 29, 1928 (AA, NY); Tsin-hung-shan, N. Hin-yen, *R. C.*

Ching, no. 6954, August 18, 1928 (AA). Western Szechuan : in thickets, Ya-chou, alt. 600–900 m., *E. H. Wilson*, no. 781, July & Dec. 1908 (climber, 5 m.; flowers white) (AA, G); Mt. Omei, *E. H. Wilson*, Veitch Exp. no. 5042, July 1904 (AA); in thickets, Nanchuan hsien, *W. P. Fang*, no. 5666, Oct. 30, 1928 (AA, NY). Yunnan : between Man-pieh and Man Lien, *J. F. Rock*, no. 2934, March 21, 1922 (scandent shrub with stiff, drooping branches; flowers white; fruits purple) (AA); beyond Lung Kai, watershed of Black River, or Papienho, *J. F. Rock*, no. 3069, April 5, 1922 (scandent shrubs with very fragrant, white flowers) (AA); between Tengyueh and Bhamo at the Yunnan-Burma border, *J. F. Rock*, no. 7833, December 1922 (scandent shrub) (AA); Mengtze, *A. Henry*, no. 940, Dec. 20 (shrub 1.5 m.) (NY); Szemao forests, alt. 1525 m., *A. Henry*, no. 11713 (large climber on trees; white flowers) (AA, NY); on scrub in thickets, hills east of Tengyueh, lat. 25° N., alt. 1830–2135 m., *G. Forrest*, no. 8072, June 1912 (scandent shrub 1.5–3.5 m.; flowers ivory-white, exterior dull crimson-lake, strongly fragrant) (AA); in open situations on trees in the Machang-kai valley, lat. 25° 30' N., alt. 2135 m., *G. Forrest*, no. 11827, July 1913 (scandent shrub 3.5–6 m.; flowers waxy white, flushed rose exterior, fragrant) (AA). Annam : in thickets along river, Tourane, *J. & M. S. Clemens*, no. 3448, May–July 1927 (vine) (AA). Assam : jungle near Naga Hill, *Dr. D. Prain's collector*, no. 892, April 1899 (AA); Mausmai, Khasia and Jaintia Hills, alt. 1220 m., *L. F. Ruse*, no. 135, May 18, 1923 (shrubby climber, 6 m.; flowers white) (AA).

At first this species seemed a rather troublesome problem on account of its close relationship with *J. paniculatum* Roxb. and *J. pachyphyllum* Hemsley and the difficulty of definitely limiting any of the species.

Roxburgh in *Flora Indica* described both *J. lanceolarium* and *J. paniculatum*. The description of *J. lanceolarium* came first, was rather brief and signified only that the leaves were lanceolate and the "corymbs" terminal. Corymbs as used here proved to be an unfortunate term because all the species have open panicles. They often appear as corymbs because of the size and compactness of the flower clusters. Immediately following came the description of *J. paniculatum*. In this species "the leaflets are from oval to oblong with an obtuse point, polished and of hard texture. The flowers are small and white but numerous, on terminal pretty large open, brachiate panicles." These descriptions are both so very brief that no clue to the real identity of a plant can be had.

As a further complication, Hemsley later described the species

J. pachyphyllum which supposedly varied from "*J. paniculatum* which has narrower leaflets and distinctly pedicellate flowers." However, we have at hand material from the same locality, agreeing with Hemsley's description but possessing distinctly lanceolate leaves.

Fortunately we have sixty or more specimens of these three species in question. Included among them is an excellent photograph of the type of *J. pachyphyllum* and material collected from the type localities of the other species. At first, one is in a quandary just how to separate the species and draw a line of demarkation. The ample material at hand proved to be a salvation because it definitely proved that no distinct line can be drawn between these three species.

The greatest variation factor is leaf form. Here we find the gradation from distinctly lanceolate through ovate or elliptic-lanceolate to distinctly rotund or obtusely apiculate leaves. Furthermore these variations are found throughout the whole geographical range and not limited to individual regions which fact makes the retention of leaf forms as geographical varieties quite unadvisable. The geographical range is rather pronounced, extending from Assam and Indo-China north through all the provinces of China except those of northern China. However the series of gradation and intergradation of the characters used in limiting these species is so gradual and definitely marked that there is no doubt that the three species are all synonymous. It is very evident from the varying determination of duplicate numbers by eminent botanists that the workers were uncertain of these species and have been influenced in naming the specimens by geographical range, material at hand, previous determination and leaf shape.

8a. *Jasminum lanceolarium* Roxburgh var. *puberulum* Hemsley in Jour. Linn. Soc. XXVI. 78 (1889).—Rehder in Sargent, Pl. Wilson. II. 612 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).

Jasminum Dunnianum Lévillé in Fedde, Rep. Spec. Nov. XIII. 151 (1914).—Syn. nov.

H u p e h : ravines, north and south of Ichang, alt. 300–1000 m., *E. H. Wilson*, no. 781A, July and December 1907 (climber 7 m.; flowers white, fragrant) (AA, C); glen near Ichang, *E. H. Wilson*, Veitch Exped. no. 1018, June 1900 (climber with white flowers) (AA); foot of shaded cliff, Liang Sung Gon, alt. 780 m., *W. Y. Chun*, no. 3845, August 10, 1922 (woody vine with leaves light shiny green above, paler beneath) (AA); Ichang, *A. Henry*, nos. 2729, 3669 (G); without precise locality, *A. Henry*, nos. 3000

(AA) and 4562 (G). *Kiangsi*: circa carbonis minas Pinghsiang, alt. 600 m., *Wang Te Hui*, no. 202 in 1920 (flores albi) (AA). *Chekiang*: by the side of an exhausted stream, *Y. L. Keng*, no. 218, July 30, 1926 (trailing plant, woody and pubescent, about 2 m. long) (AA); valley along stream, Sungyang, hsien, alt. 210 m., *H. H. Hu*, no. 426, September 20, 1920 (vine about 3-6 m. with greenish white berries) (AA); on dense bushy slopes, 60 li from Wenchow, *R. C. Ching*, no. 1890 (tough climber; flowers white and scented) (AA). *Fukien*: climbing over thickets in rocky ravine, Buong Kang, Yenping, alt. 700 m., *H. H. Chung*, no. 3585, June 27, 1925 (climber with white scented flowers) (AA, C). *Kwantung*: near Taiping, *W. Y. Chun*, no. 5670, Dec. 11, 1927 (on shrubs in open) (AA); Lok chong, *C. L. Tso*, no. 21001, June 6, 1929 (high climber, twining on trees; flowers white) (NY). *Kweichow*: Che-ten, *J. Esquirol*, no. 887, June 1906 (arbrisseau; fleurs blanches) (AA, type of *J. Dunnianum* Lévl.); inter oppida Kweiting et Tuyün, in silvis umbrosis, faucium prope vicum Madjiaduen, alt. 1100 m., *H. Handel-Mazzetti*, 206 (10649) August 9, 1917 (frutex sarmentosus fl. albis) (AA). *Kwangsi*: in woods, Bin-long, Miu-shan, N. Luchen, alt. 1220 m., *R. C. Ching*, no. 5970, June 14, 1928 (climber 6 m.) (AA).

Jasminum Dunnianum Léveillé is undoubtedly the same as *J. lanceolarium* var. *puberulum*. The variation from the straight species *J. lanceolarium* is only in the character of pubescence and not worthy of specific rank.

9. *Jasminum sinense* Hemsley in Jour. Linn. Soc. Bot. xxvi. 80 (1889).—Diels in Bot. Jahrb. xxix. 533 (1900).—Léveillé, Fl. Kouy-Tchéou, 294 (1914); in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Rehder in Sargent, Pl. Wilson. ii. 612 (1914).—Chung in Mem. Sci. Soc. China, i. 217 (1924).

Lonicera Rehderi Léveillé in Fedde, Rep. Spec. Nov. x. 145 (1911).—Non Merrill.—Syn. nov.

Lonicera Cavaleriei Léveillé in Fedde, Rep. Spec. Nov. xi. 31 (1912).—Syn. nov.

Jasminum Bodinieri Léveillé in Fedde, Rep. Spec. Nov. xiii. 151 (1914).—Syn. nov.

Hupé: mountains, Patung, *E. H. Wilson*, Veitch Exped. no. 1576, August 1900 (climber with white flowers) (NY); Nanto and mountains to the northward, *A. Henry*, no. 4464 (G, isotype). *S. W. Hunan*: in ditione oppidi Tsingtschou prope vicum Pukou, in fructicetis, alt. 400 m., *H. Handel-Mazzetti*, no. 336, July 30, 1917 (sarmentosa; fl. albi) (AA). *Fukien*: Hinghwa, *H. H. Chung*, no. 959 in 1923 (AA). *Kwangtung*: Hongkong, *C. Ford* (NY, P); Lin District, *C. O. Levine*, no. 3320, Oct. 14,

1918 (G). K w a n g s i : Tsin-hung-shan, N. Hin-yen, alt. 220 m., climbing in thickets, *R. C. Ching*, no. 7023, August 19, 1928 (bark green; flowers white, scented) (AA, NY). Y u n n a n : mountains to the north, Mengtze, alt. 1525–1830 m., *A. Henry*, nos. 9657, 9657A, 9657B (climber with white flowers) (AA, NY); Szemao, alt. 1830 m., *A. Henry*, no. 13354 (climber with white flowers) (AA); on trees and scrub, flanks of the Mingkwong valley, lat. 25° 15' N., alt. 2135 m., *G. Forrest*, no. 7861, May 1912 (scandent shrub 2.5–6 m.; flowers interior waxy white, exterior flushed crimson-rose, deliciously fragrant) (AA). K w e i c h o u : Pan chouï route de Pin-Fa a Tou-Yun, *J. Cavalerie*, no. 3038, April 9, 1907 (AA, type of *Lonicera Cavaleriei*); environs de Tsin-gay, Gan-pin, *Jean Laborde*, Sept. 1897 (arbuste, sarmenteux; fleurs jaunes (AA, type of *J. Bodinieri* Lévl.). W e s t e r n S z e c h u a n : in thickets, Ya-Chou-Fu alt. 600–900 m., *E. H. Wilson*, no. 2808, August and November, 1908 (climber, 3 m.; flowers white) (AA, G).

There is no doubt but that *Jasminum Bodinieri* Léveillé, *Lonicera Cavaleriei* Léveillé and its synonym *Lonicera Rehderi* Léveillé all belong to *J. sinense*.

Series 3. PINNATIFOLIA DC.

- A. Calyx lobes subulate-setaceous, 5–8 mm. long.
- B. Flowers white.....10. *J. officinale*
- BB. Flowers pink.....11. *J. stephanense*
- AA. Calyx lobes usually obtuse or if subulate not more than 1 mm. long.
- B. Leaflets distinctly trinerved.....12. *J. polyanthum*
- BB. Leaflets five-nerved.....13. *J. dispernum*

10. ***Jasminum officinale*** Linnaeus, Sp. Pl. i. 7 (1753).—Curtis in Bot. Mag. i. t. 31 (1787).—DeCandolle, Prodr. viii. 313 (1844).—Brandis, Forest Fl. Brit. Ind. 313 (1874); Ind. Trees, 452 (1906).—Boissier, Fl. Or. iv. 43 (1879).—Clarke in Hooker f., Fl. Brit. India, iii. 603 (1882).—Dippel, Handb. Laubholzk. i. 150 (1889).—Collett, Fl. Siml. 307 (1902).—Schneider, Ill. Handb. Laubholzk. ii. 837, fig. 526 i-m, 527 d-e (1911).—Bailey, Stand. Cyclop. Hort. iii. 1718, figs. 2008 (1915).—Rehder in Sargent, Pl. Wilson. ii. 613 (1916); Man. Cult. Trees Shrubs, 765 (1927).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Jasminum vulgatum Lamarck, Fl. Franc, ii. 306 (1778).

Jasminum viminalis Salisbury, Prodr. 12 (1796).

Jasminum affine Lindley in Bot. Reg. xxxi. t. 26 (1845).

Y u n n a n : high plateau between Talifu and Likiang to the foot of the Likiang Snow Range, *J. F. Rock*, nos. 3190, 3244 and 3312, May 6–11, 1922 (climber; flowers white with purple tubes) (AA); Pe-long-tsin, alt., 3200 m., *E. E. Maire*, no. 3352 ser. B, June 1910 (fleurs blanches) (NY, P); on scrub on the descent to

the Yangtze, from the eastern boundary of the Lichiang valley, lat. $27^{\circ} 15' N.$, alt. 2740 m., *G. Forrest*, no. 10107, June 1913 (scandent shrub 1.5–4 m.; flowers white, exterior dull rose, fragrant) (AA); in rupibus calcareis, in summa Lan tsching shan, Yunnan fu, alt. 2400 m., *O. Schoch*, no. 206, June 15, 1916 (flores rubicundi) (AA). Szechuan: open rocky, dry situation around Mu-li, lat. $28^{\circ} 12' N.$, long. $100^{\circ} 50' E.$, alt. 2135–2440 m., *G. Forrest*, no. 20417, June 1921 (shrub 0.5–1.0 m.; flowers fragrant, white, flushed purple exterior) (AA); exact locality lacking, ravine, alt. 2740 m. *E. H. Wilson*, Veitch Exped. no. 4074A, June 1904 (flowers white) (AA); Monkong Ting, alt. 2300–2600 m., *E. H. Wilson*, no. 2807, June 1908 (climber 2–3 m., flowers white, fragrant) (AA, G); Te chang, *C. K. Schneider*, no. 702, April 3, 1914 (AA); inter Yenyuan tsien and Hunka, alt. 3800 m., *C. K. Schneider*, no. 1474, June 12, 1914 (flowers white flushed with red) (AA). Southeastern Tibet: on scrub and in thickets in side valleys on the Salween-Kiu-chiang divide, Tsarong, lat. $28^{\circ} 40' N.$, long. $98^{\circ} 15' E.$, alt. 1830–2135 m., *G. Forrest*, no. 19296, August 1919 (scandent shrub 6–9 m., flowers strongly fragrant, white, flushed deep rose exterior) (AA). British India: Langer, Bhandal Valley, Chamba State, alt. 2200 m., *R. N. Parker*, Oct. 2, 1919 (AA); Bhabua village, West Nepal, *Bis Ram*, no. 452, May 21, 1929 (climbing shrub) (AA); Kumaon, *Dr. J. F. Royle*, date and number lacking (G); Panjab, *T. Thomson*, number and date lacking (G); Malabar, *Concav, Stocks, Law and ?* (G).

10a. *Jasminum officinale* Linnaeus forma *grandiflorum* (Linnaeus), comb. nov.

Jasminum grandiflorum Linnaeus, Sp. Pl. ed. 2, i. 9 (1762);—Ker in Bot. Reg. ii. t. 91 (1816).—Roxburgh, Fl. Ind. i. 98 (1820).—DeCandolle, Prodr. viii. 313 (1844).—Wight, Ic. Pl. Ind. Or. iv. t. 1257 (1848).—C. B. Clarke in Hooker f., Fl. Brit. Ind. iii. 603 (1882).—Bailey, Cycl. Am. Hort. ii. 843 (1900); Stand. Cycl. Hort. iii. 1718 (1916).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 150 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Jasminum officinale grandiflorum Anon. in V. Lemoine et Fils (Catalogue) no. 173, p. 14 (1909).—nomen nudum.

Yunnan: open moist situation by sides of streams in the Tali Range, lat. $25^{\circ} 40' N.$, alt. 2135–2440 m., *G. Forrest*, no. 4683, May–June 1906 (shrub 2–4 m.; flowers exterior rose, interior white, fragrant) (AA); haies des coteaux derrière Tong-tchouan, alt. 2600 m., *E. E. Maire*, no. 7188 collected in May (grimant; fleurs blanches) (C); on cliffs, Pu-esh, alt. 1525 m., *A. Henry*, no. 13397 (climber with white flowers) (AA, NY). N. India: Kashmir: Hariwan stream, alt. 1615 m., *G. A. Gamme*, July 10, 1891 (plant 1 m.) (AA); Ganderbal-Kangan, alt. 1830 m., *R. R.*

Stewart, no. 6228, July 14, 1921 (AA); Domel Thelum Valley, alt. 750 m., *Keshavanam*, no. 657, June 1907 (AA). P u n j a b : Taranda, Badhahr State, Simla District, alt. 1800 m., *R. N. Parker*, no. 2979, June 10, 1928 (AA). W e s t e r n H i m a l a y a : Kamálhan, Kagán, *Indyat*, June 17, 1899 (AA); Sultánpur on the Biás River, Prov. Kulu, *Herb. W. J. Hooker*, Cat. no. 12246, June 5, 1856 (G); Kumaon, alt. 1220 m., *R. Strachey and J. E. Witherbottom*, no. 5 (G). B u r m a : Tenasserim and Andamans, *J. W. Helfer*, no. 3718 (G); precise locality lacking, *R. Wight*, no. 1752 (G).

The species *J. officinale* L. and the erstwhile *J. grandiflorum* L. offered considerable difficulty in attempted specific delimitation. No character or group of characters held together consistently enough to permit definite separation. In examining the copious material at hand (both spontaneous and cultivated) it was found that there was a definite gradation in all the diagnostic characters from the larger-flowered forms to the small-flowered specimens; from the longer, lanceolate leaflets to the smaller cuspidate forms; from the long subulate-setaceous calyx teeth to the less conspicuous calyx teeth; in fact, on a single flower cluster were found enough differentiation in calyx teeth length sufficient to be used in specific limitation. However, some specimens, especially those in cultivation presented a larger, more showy flower development. This form is very much cultivated in gardens under the name *J. grandiflorum* and as a result, it seems best, if for this purpose alone, to retain the name *grandiflorum* as a horticultural form of *J. officinale*.

11. × *Jasminum stephanense* V. Lemoine and Son (Cat.) no. 195, p. 9, pl. (1921).—A. Meunissier in *Rev. Hort.* 1927, p. 643, t.—Mrs. J. N. Henry in *Horticulture*, VIII. 486, fig. (1930). = *J. Beesianum* × *officinale* f. *grandiflorum*.

Jasminum officinale grandiflorum × *J. Beesianum* Anon. in *Jour. Soc. Nat. Hort. France*, ser. 4, XXI. 224 (1920).

Y u n n a n : Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, *J. F. Rock*, no. 4509, May–Oct. 1922 (flowers entirely pink) (AA, NY).

This hybrid between *J. officinale grandiflorum* and *J. Beesianum*. was first exhibited as an artificial hybrid by M. Thomas Javit at the Flower Show of the Société Nationale d'Horticulture de France in July 1920. Until recently it had not been known as a natural hybrid. However, it is interesting to know that this beautiful hybrid Jasmine combining the attractive coloring of *J. Beesianum* with the fragrance of its other parent was collected by Rock in Yunnan almost at the same time of its presentation to the public in artificial form. Besides the spontaneous specimen of J. F. Rock,

material collected from a plant given the Arboretum by Mrs. J. N. Henry of Gladwyne, Pa., was obtainable also. Mrs. Henry says that the plant grows luxuriously at both her Pennsylvania and Maryland homes. Unfortunately it is not hardy as far north as Massachusetts. An excellent flowering specimen collected at the Vilmorin Nurseries at Verrières is in the herbarium of the Arnold Arboretum.

The name *stephanense* refers to Saint-Etienne, the place where the hybridization was made; *Stephanus* being the latin equivalent of Etienne.

12. *Jasminum polyanthum* Franchet in Rev. Hort. 1891, p. 270, fig. 69; Lévillé in Fedde, Rep. Spec. Nov. XIII. 150 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).

Jasminum Blinii Lévillé in Fedde, Rep. Spec. Nov. XIII. 151 (1914); Cat. Pl. Yun-nan 179 (1916).—Syn. nov.

Jasminum Delafieldii Lévillé, Cat. Pl. Yunnan 179 (1916).—Syn. nov.

Y u n n a n : Mengtze, alt. 1525 m., *A. Henry*, no. 10314 (AA); Chu-yuan, *A. Henry*, no. 10314A (AA); Kon ya hua, Mengtze woods, alt. 1400 m., *A. Henry*, no. 10314B ("dog's tooth flower"; large climber; flowers with white lobes and pink corolla tubes; strong odor, worn by women for adorning the hair) (AA, NY); mountain forests, Szemao, alt. 1525 m., *A. Henry*, no. 11656 (climber with white flowers) (AA); in collibus calcareis, Yunnan fu, alt. 2000–2200 m., *O. Schoch*, no. 18, April 24, 1916 (frutex valde scandens) (AA); amongst scrub in the Tali valley and along the base of the eastern flank of the Tali Range, lat. 25° 40' N., alt. 2040–2440 m., *G. Forrest*, no. 4658, May–August 1906 (weakly scandent shrub 2–3 m.; flowers, interior white, exterior rose, strongly fragrant) (AA); on scrub in open situations, hills around Tengyueh, lat. 25° N., alt. 1675–2135 m., *G. Forrest*, no. 9761, March 1913 (scandent shrub 2–6 m.; flowers, interior white, exterior red) (AA); haies de Tso-si, alt. 2900 m., *E. E. Maire* (AA no. 253) April 19—(arbuste grimpant à longs rameaux toujours verts; fls. branches levées de rose) (AA); Yunnan-fu, alt. 2200 m., *Harry Smith*, no. 1622, Sept. 4, 1922 (flores rosei) (AA); haies de Ma-Tchang près Tchen-Lin, *J. Esquirol*, April 28, 1906 (très belle fleur pendant en longs festons, rosée à l'intérieur) (fragment and photo of type of *J. Delafieldii* in AA, type at E); precise locality lacking, *F. Ducloux*, nos. 58, 800 (NY). K w e i c h o u : Gan-chouen, *J. Cavalerie*, no. 3912, May 1912 (liane; fleurs blanches) (AA, G) (iso-syntypes of *J. Blinii*).

The two species *Jasminum Blinii* and *J. Delafieldii* described by Lévillé are found on careful study to be conspecific with *J. polyanthum* Franchet.

13. *Jasminum dispernum* Wallich in Roxb. Fl. Ind. ed. Carey, 1. 99 (1820); Pl. As. Rar. III. t. 274 (1832).—D. Don, Prodr. Fl. Nepal. 106 (1825).—DeCandolle, Prodr. VIII. 310 (1844).—Brandis, For. Fl. Brit. Ind. 313 (1874).—C. B. Clarke in Hooker f., Fl. Brit. Ind. III. 602 (1882).—Duthie, Fl. Upper Gangetic Plain, II 23 (1911).—C. J. Bamber, Pl. Punjab, 588 (1916).—Parker, For. Fl. Punjab, Hazara and Delhi, ed. 2, 320 (1924).—Ostweston, For. Fl. Kumaon, 335 (1927).

Jasminum quinquinerve Lambert ex D. Don, Prodr. Fl. Nepal. 106 (1825).

Y u n n a n : watershed of the Black River or Papienho, between Mohei and Maokai beyond Chugai, alt. 2040 m., *J. F. Rock*, no. 3016, April 7, 1922 (scandent shrub, 3–4.5 m.; flowers white inside, purplish red outside; drupes blackish blue) (AA); on the Shweli-Salween divide, lat. 25° 30' N., alt. 2040 m., *G. Forrest*, no. 15720, July 1917 (AA). British India: Sanpra, West Nepal, *Bis Ram*, no. 460, May 23, 1929 (climber) (AA); Katai, West Nepal, *Bis Ram*, no. 124, Mar. 28, 1929 (AA); Camp Dharamsala, Distr. Kangra Punjab, *Bis Ram*, no. 326, June 6, 1928 (AA); Sikkim, alt. 1500 m., *G. King*, Feb. 19 and March 24, 1876 (AA); Sikkim, alt. 1500–1560 m., *J. D. Hooker* (G); Himalaya bor. occidentalis, alt. 1800–2400 m., *T. Thomson* (G); in hedges on road from Chuari to Sihunta, Bhatiyat Wagirat, Chamba State, alt. 900–1050 m., *R. N. Parker*, Oct. 1, 1920 (AA); Konoma, Assam, alt. 1500 m., *Dr. King's Collector*, no. 220, April 1896 (AA); Lyndoh Forest, Mawphlang, K. and J. Hills, Assam, alt. 1800 m., *Upendra-nath Kanjilal*, no. 4656, Oct. 22, 1914 (AA); Kumaon, alt. 2100 m., *R. Strachey and J. E. Winterbottom*, no. 6 (G); Mussoonia, Siwalik and Jaunsar Divisions, Chandan, *Singh Rawat* no. 76, June 9, 1921 (scandent shrub) (AA).

Series 4. UNIFOLIOLATA DC.

- A. Calyx lobes diminutive, obtuse, not subulate-setaceous.
- B. Corolla 35 mm. (in toto); tube 25 mm. long; leaf 18 cm. long, 8 cm. wide.....14. *J. coffeinum*
- BB. Corolla about 25 mm. long or less; leaves hardly ever over 4 cm. wide, usually considerable less.
- C. Inflorescence terminal, a many-flowered, diffuse cyme, up to 10 cm. wide, corolla tube and lobes (linear) nearly equal.
15. *J. Seguinii*
- CC. Inflorescence terminal and axillary, usually in close clusters, corolla tube considerably longer than lobes (acute).
- D. Leaves usually 9–16 cm. long, 3–4 cm. wide, lanceolate or oblong lanceolate; Western China (Yunnan).
16. *J. dumicolum*
- DD. Leaves 3.5–8.5 cm. long, 1.5–4 cm. wide, ovate; Eastern China (Kwantung).....17. *J. microcalyx*

AA. Calyx lobes subulate-setaceous.

B. Calyx glabrous.

C. Leaves coriaceous or sub-coriaceous.

D. Fruit yellow; leaves lanceolate.....18. *J. Prainii*

DD. Fruit black; leaves ovate.....19. *J. pentaneurum*

CC. Leaves not coriaceous.

D. Flowers red; fruit yellow.....20. *J. Beesianum*

DD. Flowers white; fruit black.....21. *anastomosans*

BB. Calyx pubescent.

C. Leaves and branchlets flavescent; leaves 2-4 cm. long, chartaceous.

22. *J. nintoooides*

CC. Leaves glabrous or pubescent, not flavescent, seldom less than 6 cm. long.

D. Leaves very thin, membranaceous, reticulations outstanding on upper surface and lower surface; flowers double.

23. *J. sambac*

DD. Leaves not particularly thin, some near coriaceous, upper surface not noticeably reticulate.

E. Stem leaves cordate at base.....24. *J. multiflorum*

EE. Stem leaves cuneate or truncate at base.

F. Leaves distinctly cuneate at base.....25. *J. coarctatum*

FF. Leaves truncate, or nearly so at base; not cuneate.

26. *J. amplexicaule*

14. *Jasminum coffeinum* Handel-Mazzetti in Anz. Akad. Wiss. Wien, LXII. 235(Pl. Nov. Sin. Forts. 37; p. 2) (1925).

Yunnan: In bambusetis et silvis apertis tropicis ex adverso supra vicum Manhao prope fines Tonkinensis, substr. schisto argilloso, alt. 200 m., *H. Handel-Mazzetti*, no. 5827, March 1, 1915 (flores albi extus rubri) (isotype in AA).

15. *Jasminum Seguinii* Léveillé in Fedde, Rep. Spec. Nov. XIII. 151 (1914).

Jasminum taliense, W. W. Smith in Notes Bot. Gard. Edinb. XII. 210 (1920).—*Syn. nov.*

K w e i c h o u : Rochers de la cascade aux environs de Hoang-Ko-Tchou, *J. Seguin*, in herb. E. Bodinier, no. 2354 June 9, 1898 (arbuste liane; fleurs blanches) (isotype in AA). Y u n n a n : on scrub and trees, western flank of the Tali Range, lat. 25° 40' N., alt. 3050 m., *G. Forrest*, no. 11667, Aug. 1913 (scandent shrub 2-3 m.; flowers fragrant, interior creamy white, exterior flushed crimson) (isotype of *J. taliense* in AA, C); amongst scrub, western flank of the Tali Range, lat. 25° 40' N., alt. 2740 m., *G. Forrest*, no. 15605, July 1917 (semi-scandent shrub 2-3 m.; flowers white with flushed rose exterior, fragrant) (isotype of *J. taliense* in AA); on scrub in thickets on the N'Maikha-Salwin divide, lat. 26° 20' N., alt. 2740 m., *G. Forrest*, no. 18330, August 1919 (scandent shrub 3-3.5 m.; flowers white, exterior, faintly flushed rose fragrant) (AA); in thickets by streams in side valleys on the Chien-chuan-Mekong divide, lat. 26° 30' N., long. 99° 40' E., alt. 2135-

2440 m., *G. Forrest*, no. 23166, July 1922 (scandent shrub 2–6 m.; flowers white with flushed purple-rose exterior, fragrant) (AA); south forests, Szemao, alt. 1525 m., *A. Henry*, nos. 12661 and 12661A (large climber with white flowers) (AA, NY); in valle fluminis Yangtze, prope Ta ku, alt. 2500 m., *C. K. Schneider*, no. 2150, August 1914 (fl. albo-flavi) (AA); ex colle Tong chan, Tie So, *Simeon Tén*, no. 131, May 30, 1916 (frutex prostrata ad 1 m.; floribus albi) (AA); Yangpi road in mountains of the Yangpi river drainage basin, *J. F. Rock*, no. 6214, August 1922 (flowers white, fragrant) (AA); Mengtze, *A. Henry*, nos. 9581, 9581B, 9581C (climbing shrub 1–1.5 m.; flowers white; fruit black) (AA, NY); dry forest edge of paddy plain, Muang Hun, *J. F. Rock*, no. 2440, Feb. 14, 1922 (woody vine with scandent branches) (AA). Szechuan: inter pagum Telipu et flumen Yalung, alt. 2000 m., *C. K. Schneider*, no. 1137, May 5, 1914 (frutex sub-scandens; fl. albi, valde odorati) (AA).

There seem to be no difference between the two types to warrant specific delimitation.

16. *Jasminum dumicolum* W. W. Smith in Notes. Bot. Gard. Edinb. XII. 207 (1920).

Jasminum Schneideri Léveillé, in herb.

Yunnan: among scrub, Shweli Valley, lat. 25° N., alt. 1525–1830 m., *G. Forrest*, no. 7926, May 1912 (shrub 2–3 m.) (isotype in AA); on scrub and trees, hills to the east of Tengyueh, lat. 25° N., alt. 1830–2135 m., *G. Forrest*, no. 8094 (scandent shrub 2–3 m.) (isotype in AA); on trees and scrub in rather shady situations, western flank of the Shweli-Salween divide, lat. 25° 10' N., alt. 2440–2740 m., *G. Forrest*, no. 9346, Dec. 1912 (scandent shrub 3–5 m.; flowers exterior deep crimson rose, interior white or flushed rose, fragrant) (isotype in AA); on trees, Ma-chang-kai Valley, north of Tengyueh, lat. 25° 20' N., alt. 1830 m., *G. Forrest*, no. 9531, Feb. 1913 (scandent shrub 6–9 m.; flowers interior white, exterior dull rose, fragrant) (isotype in AA); on scrub, Ma-chang-kai Valley, lat. 25° 20' N., alt. 1830–2135 m., *G. Forrest*, no. 9757, March 1913 (scandent shrub 2–3.5 m.; flowers interior creamy white, exterior deep dull crimson) (isotype in AA); mountain forests, Mengtze, alt. 1525 m., *A. Henry*, no. 10634A (large climber) (isotype in NY); Szemao, *A. Henry* 11708 (large climber) (NY); at Kao shan ssu, Shweli River drainage basin to summit of Shweli-Salween watershed, east of Tengyueh, *J. F. Rock*, no. 7894, Nov. 1922–March 1923 (climber; flowers white inside, purplish outside, fragrant) (AA); environs de Mý tsaô, *F. Ducloux*, no. 112, March 4, 1897 (tiges s'enlaçant aux arbores et buissons; fleurs blanches,

boutons roses) (AA; photo. and fragments of type of *J. Schneideri* Lévl. from E).

17. *Jasminum microcalyx* Hance in Jour. Bot. XXI. 323 (1883).—Hemsley in Jour. Linn. Soc. London, XXVI. 79 (1889).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).—Merrill in Lingnan Sci. Jour. V. 147 (1927).

Jasminum inornatum Hemsley in Jour. Linn. Soc. XXVI. 78 (1889).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).—Syn. nov.

H a i n a n : Hoi-hau, *B. C. Henry*, no. 22171 (Hance Herb.) Oct. 19, 1882 (type; photo. in AA, carbon tracing in NY); in dry thickets, Hoi-hau, *F. A. McClure*, no. 7595, Oct. 10, 1921 (bushy vine with fragrant, white flowers) (NY). K w a n t u n g : without precise locality, *C. Ford*, no. 113 (type; photo. in AA, carbon tracing in NY).

Although little known, the species *J. microcalyx* is quite outstanding in its nearly obsolete calyx-lobes. Hemsley's *J. inornatus* described six years later is conspecific with *J. microcalyx*.

18. *Jasminum Prainii* Léveillé in Fedde, Rep. Spec. Nov. x. 148 (1911); XIII. 151 (1914).

K w e i c h o u : route de Pin-fa ad Ou-glan *J. Cavalerie*, August 1908 (E, type; AA, isotype).

There is a superficial resemblance between *J. Prainii* Léveillé and *J. dumicolum* W. W. Smith. However, *J. dumicolum* possesses calyx-lobes of a more obtuse nature while *J. Prainii* has calyx lobes distinctly subulate-setaceous.

19. *Jasminum pentaneurum* Handel-Mazzetti in Anz. Akad. Wiss. Wien, LIX. 110 (Pl. Nov. Sin. Forts. 16, p. 9) (1922).

K w a n t u n g : In monte Dingwu-schan ad occid. urbis Kanton, *R. Mell*, no. 215 March 26, 1918 (photo. of type in AA); in montibus Lungtou-schan loco Siuhang dicto, alt. 300 m., *R. Mell*, no. 922, Nov. 18, 1917 (fragment of type in AA); Loting, *Y. Tsiang*, no. 1143, Sept. 14, 1928 (AA, NY); on side of river, Ting Wu Shan, *Y. Tsiang*, no. 1490, Nov. 5, 1928 (scandent) (AA, NY); in dense mixed woods, Kochow District, *Y. Tsiang* no. 2244A, May 11, 1929 (AA); Tseh Tse Dee, West River, Yun Fou district, *Y. K. Wang*, no. 321, Jan. 14, 1928 (AA); on roadside, Yun Fou District, *Y. K. Wang*, no. 1832, Feb. 12, 1929 (NY); in mixed woods, Ting Wu Shan, *W. Y. Chun*, no. 6344, May 5, 1928 (scandent) (AA); in valley, Tsing Yun District, *W. Y. Chun*, no. 30472, March 23, 1930 (suffruticose) (NY); scattered along trail near stream above

monastery, Ting Woo Mts., alt. 300 m., *C. O. Levine*, no. 2016, May 26, 1918 (C); Poon Yue District, *Ah To*, Hb. no. 3177, Oct. 30, 1918 (flowers white) (C); same locality, *C. O. Levine*, Hb. no. 3180, Nov. 1, 1918 (AA); Ting Woo Mt., *C. O. Levine & G. W. Groff*, no. 42, Nov. 18, 1916 (AA); in woods, Teng wu shan, *H. T. Ho*, no. 60041 (shrub) (NY); exact data lacking, *G. Ford*, (NY). **K w a n g s i**: Bako-shan, W. Poseh, alt. 900 m., *R. C. Ching*, no. 7521, Sept. 18, 1928 (tough straggling climber on trees, 9 m.; flowers white, star shaped) (AA).

This recently described species although quite outstanding and frequently collected especially in Kwangtung has been usually identified with *J. laurifolium* Roxb., *J. subtriplinerve* Bl. and *J. nervosum* Lour. The two former species are probably confined to the Himalayan region only, while the latter, *J. nervosum* Lour. seems to be of rather dubious status and closely allied to *J. anastomosans*. This would seem to account for the seeming confusion.

20. *Jasminum Beesianum* Forrest & Diels in Notes Bot. Gard. Edinb. v. 253 (1912).—Léveillé, Fl. Kouy-Tchéou, 293 (1914); in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Rehder in Sargent, Pl. Wilson. II. 615 (1916).—Chung in Mem. Sci. Soc. China, I. 216 (1924).

Jasminum Wardii Adamson in Jour. Bot. LI. 131 (1913).—**Syn. nov.**

Jasminum Delavayi Franchet ex Diels in Notes Bot. Gard. Edinb. v. 253 (1912), in obs.

Jasminum Valbrayi Léveillé in Fedde, Rep. Spec. Nov. XIII. 337 (1914).—**Syn. nov.**

Jasminum violascens Lingelsheim in Fedde, Rep. Spec. Nov. Beih. (Limpricht, Bot. Reise Hochgebirg. China & Ost-Tibet) XII. 463 (1922).—**Syn. nov.**

Y u n n a n: amongst rocks and stone on dry, barren, open ground at south end of the Sung-kwei valley, lat. 26° 20' N., alt. 2440–2740 m., *G. Forrest*, no. 2021, April 1906 (shrub to 1 m.; flowers pink or deep rose, strongly fragrant) (AA, isotype); Lichiang Range, lat. 27° 15' N., alt. 2740–3200 m., *G. Forrest*, no. 10066, June 1913 (AA); around Pe Yen Tsin (Tong-tsichoun) *Simeon Tén*, no. 499, April 5, 1919 (prostrate shrub with red flowers) (AA); in dumetis ad vicum Djuandjiadjio et Tschapoling prope oppidum Sidsung, alt. 1900–2000 m., *H. Handel-Mazzetti*, no. 20, June 9, 1917 (fruticulus subscandens: fl. intense rosei) (AA); ad pedem montium niveosorum prope Lichiang in dumetis ad rivulos, alt. 2900 m., *C. K. Schneider*, no. 3199, Oct. 1914 (AA); in regione Lichiang prope pagum Ngu Leh keh, alt. 2900 m., *C. K. Schneider*, no. 2082, July 31, 1914 (scandens) (AA); climbing over Roses on high plateau between Talifu and Likiang to the foot of the Likiang Snow Range, *J. F. Rock*, no. 3216, May 6–11,

1922 (AA, NY); in summa montis Mangan in rupibus calc., alt. 2400 m., *O. Schoch*, no. 207, May 26, 1916 (AA); haies-plaine de Tong tchouan, alt. 2500 m., *E. E. Maire* (AA no. 108) (arbrisseau grimpant toujours; fl. carmine) (AA); haies de la plaine à Tong-tchouan, alt. 2500 m., *E. E. Maire*, no. 3310, May 1911 (fl. rouge pourpre) (NY, C); haies, plaine de Tong-tchouan, alt. 2500 m., *E. E. Maire*, May 1913 (fleurs d'un rouge carmin) (AA, isotype of *J. Valbrayi*); precise data lacking, *E. E. Maire*, no. 7417 (NY); precise data lacking, *F. Ducloux*, no. 6 (K) and no. 483 (AA). Szechuan: in prato herboso, Teng-ksiang-ying, alt. 2100 m., *Harry Smith*, no. 1886, May 20, 1922 (frutex humilis ad 3 dm. altus; flor. roseis-rubris) (AA); near Si tchi, Ning yuan fu, *C. K. Schneider*, no. 905, April 15, 1914 (AA); Lololand, östlich von Chao kio bei heisser Quelle, *C. K. Schneider*, no. 973, April 23, 1914 (AA); precise locality lacking, ravine, alt. 900–1830 m., *E. H. Wilson*, Veitch Exped. no. 4074, June 1904 (climber with rose flowers) (AA). East Tibet: Dawo, Tal von Lumpu, alt. 3900 m., *Dr. Wolfgang Limpricht*, no. 2006, July 15, 1914 (AA, photo. of type of *J. violascens* deposited at Herb. Breslau).

Jasminum Beesianum Forrest & Diels is probably one of the most outstanding species in the genus. Its distinctly ovate, attenuate leaves and its red flowers make it noticeably different. Adamson in describing *J. Wardii* was just one year later than Forrest and Diels in publishing his description of the species. Although not having seen the type of *J. Wardii*, another specimen collected by F. Ducloux and mentioned in the description by Adamson was loaned us by Kew and proves to be identical with *J. Beesianum*.

J. Delavayi Franchet as stated by Diels in an explanatory paragraph supplementing the original description of *J. Beesianum* is merely a name on a specimen in the Paris Herbarium collected by Bonvalot and the Prince of Orléans, between Batang and Litang in a humid valley on June 19th.

Photographs of the types of *J. Valbrayi* Léveillé and *J. violascens* Lingelsheim are in Arnold Arboretum herbarium. All these names mentioned above are clearly synonyms of *J. Beesianum*.

21. *Jasminum anastomosans* Wallich, Cat. 2863 (1829), nomen nud.—Kurz, For. Fl. Brit. Burma, II. 152 (1877).—DeCandolle, Prodr. VIII. 305 (1844).—C. B. Clarke in Hooker f., Fl. Brit. Ind. III. 596 (1882).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).

? *J. nervosum* Loureiro, Fl. Cochinch. I. 20 (1793).

Yunnan: Szemao, alt. 1370 m., *A. Henry*, no. 11969, April

26 (climber on shrubs; white flowers) (AA, NY); between Keng Hung and Muang Hing, above Pang Khun, alt. 1380 m., *J. F. Rock*, no. 2611, Feb. 26, 1922 (twiner among tree branches) (AA); dry jungle, plain of the Keng Hung, alt. 750 m., *J. F. Rock*, no. 2507, Feb. 17, 1922 (stems dark green with a blackish tinge; petals pinkish) (AA). *K w a n g s i* : in bush, I-shan, alt. 210 m., *R. C. Ching*, no. 5175, May 22, 1928 (AA). *K w a n t u n g* : on open, extensive plain, Pon-tan, Luichow, alt. 210 m., *Y. Tsiang*, no. 2544, June 2, 1929 (scandent vine with white flowers) (AA, NY); on shrub in village common and roadside, Hainan, *F. A. McClure*, no. 9193, April 20, 1922 (vine 2-4 m.; flowers white, fragrant; fruits purple, black when ripe) (AA); Hainan, *A. Henry*, no. 8456, Nov. 1889 (G); Hainan, *Katsumatra* (Hongkong Herb. no. 5406) (C); in dense mixed woods, Koliangling, Kochow, alt. 255 m., *Y. Tsiang*, no. 2221, May 10, 1929 (scandent vine) (NY); same locality, *Y. Tsiang*, no. 2244, May 11, 1929 (scandent vine) (NY).

The synonymy of this species is rather difficult to express because of the fact that *J. anastomosans* has usually been considered a Himalayan rather than a Chinese species. C. B. Clarke in Hooker's Flora of British India lists *J. stenopetalum* Lindley, *J. trinerve* Roxburgh and *J. laurifolium* Wallich, non Roxburgh, as synonyms of *J. anastomosans*. Although these last named may be true synonyms of *J. anastomosans* they have not been treated as such in this paper because none of the type specimens or, in fact, any specimens bearing these determinations have been seen by the author.

J. nervosum Loureiro which is questionably cited under this species has heretofore been considered a good Chinese species. However, in examining the material so labeled one finds that the majority of specimens belong to *J. pentaneurum* Hand.-Mazz. leaving only a few sheets to this species. The original description is rather confusing and probably the cause of most of the misunderstanding because it is quite impossible to understand from it just what Loureiro intended as *J. nervosum*. He refers to the leaves as "folia impari pinnata." This, of course, would eliminate *J. nervosum* from the section Unifoliolata unless the small lateral branches were here mistaken for compound leaves. In this case, his description would read folia pari pinnati because of the terminal pair of leaflets. No type or authentic material seems to be available so *J. nervosum* is best treated here as a dubious synonym of its most closely allied species.

Confused with this same group of specimens was the Himalayan

species *J. laurifolium* Roxburgh. A single specimen collected by one of Dr. Prains' collectors, no. 885 made in the jungle near Naga Hill in Assam in April 1899 answers the original description made by Roxburgh and agrees well with an illustration in Botanical Register VII. t. 521 (1821). *Jasminum laurifolium* probably is then distinctly a Himalayan species and one not to have more than a nominal inclusion here.

Léveillé described in Fedde, Rep. Spec. Nov. XIII. 151 (1914) a new variety, *J. laurifolium* Roxb. var. *villosum*. This is probably a variety of *J. anastomosans*. Undoubtedly he was working with material of *J. anastomosans* incorrectly labeled *J. laurifolium* and had this in mind when he described his new variety. A very fragmentary specimen (in fact, only a leaf and a single flower) of the type is at present in the herbarium of the Arnold Arboretum. It seems to agree with *J. anastomosans* in all respects save its pubescent character. However, although there is quite a positive feeling that the material is a variation of *J. anastomosans* one hardly feels justified in making the actual variety transfer on such sparse evidence.

22. *Jasminum nintoides* Rehder in Sargent, Pl. Wilson. II. 615, 1916.—Chung in Mem. Sci. Soc. China, I. 216 (1924).

Y u n n a n : trailing and climbing over rocks, Mengtze, alt. 1600 m., A. Henry, nos. 9433, type (AA, NY) and 9433A, 9433B (flowers white) (AA).

23. *Jasminum sambac* (L.) Aiton, Hort. Kew. I. 8 (1789).—Willdenow, Sp. Pl. I. 35 (1797).—Edwards in Bot. Reg. I. 1 (1815).—Wallich, Cat. n. 2868 (1829).—DeCandolle, Prodr. VIII. 301 (1844).—C. B. Clarke in Hooker f., Fl. Brit. Ind. III. 591 (1882).—Hemsley in Jour. Linn. Soc. XXVI. 80 (1889).—Bailey, Cycl. Am. Hort. II. 843 (1900); Stand. Cycl. Hort. III. 1717 (1915).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Chung in Mem. Sci. Soc. China, I. 216 (1924).

Nyctanthes Sambac Linnaeus, Sp. Pl. I. 6 (1753).

Nyctanthes undulatum Linnaeus, Sp. Pl. I. 6 (1753).

Jasminum bicorollatum Noronha in Verh. Batav. Gen. v. ed. 1, art. IV. 19 (1790).

Jasminum odoratum Noronha in Verh. Batav. Gen. v. ed. 1, art. IV. 19 (1790).

Mogorium Sambac Lamarck, Encycl. Méth. IV. 210 (1796); Ill. I. t. 6, fig. 1 (1823).

Mogorium undulatum Lamarck, Encycl. Méth. IV. 212 (1796).

Jasminum fragrans Salisbury, Prodr. 12 (1796).

Jasminum Zambac Roxburgh, Hort. Beng. 3 (1814), nomen; Fl. Ind. I. 87 (1820).

Jasminum pubescens Buchanan-Hamilton ex Wallich, Cat. sub no. 2880 (1829), nomen.—Jackson, Ind. Kew. I. 1250 (1893), as syn. of *J. sambac*.

Jasminum quadrifolium Buchanan-Hamilton ex Wallich, Cat. no. 2868 (1829), nomen.—Jackson, Ind. Kew. i. 1250 (1893), as syn. of *J. sambac*.

Jasminum quinqueflorum Heyne ex Wallich, Cat. no. 2878 (1829), nomen.—Jackson, Ind. Kew. i. 1250 (1893), as syn. of *J. sambac*.

Jasminum undulatum Hort. Heyne ex Wallich, Cat. No. 2871 (1829), nomen.—Jackson, Ind. Kew. i. 1251 (1893), as syn. of *J. sambac*.

Jasminum Heyneanum Wallich, Cat. no. 2871 (1829), nomen.—Jackson, Ind. Kew. i. 1250 (1893), as syn. of *J. sambac*.

Jasminum sambuc Wight, Ic. ii. t. 704 (1843).

K w a n g s i: Moo-shan, Luchen, alt. 540 m., *R. C. Ching*, no. 5394, May 26, 1928 (climber 2.5 m.; flowers white, scented) (AA).

K w a n g t u n g: Honam Island, *C. O. Levine* no. 910, June 18, 1917 (AA). F u k i e n: dry place on Ling Pu Mt., vicinity of Foochow, *Tang Siu Ging* (under direction of F. P. Metcalf), no. 5196, Oct. 26, 1926 (AA); Foochow, *H. H. Chung*, no. 3836, Aug. 27, 1925 (shrub 0.70 m. tall; flowers white) (AA).

This species has been so long in cultivation that it is now quite difficult to cite its original spontaneous source with certainty. It is commonly known as the Arabian Jasmine. However, it is so commonly cultivated in China that one feels all the specimens cited are cultivated (even though no mention is made on the label) or escaped from cultivation.

The synonyms of such a popular species are many but the species itself is so distinct that, as a rule, the synonyms can be easily recognized as such. An interesting exception is *Jasminum Blancoi* Hasskarl (Flora, XLVII. 4, 1864) cited by Merrill in Enum. Philipp. Flow. Pl. II. 308 (1923) as a synonym of *J. sambac*. It seems Merrill overlooked the fact that Hasskarl mentions *Nyctanthes Sambac* Blanco, non L., as a synonym to his species. Hasskarl says that the leaves are compound and that there is a relationship between *J. Blancoi* and *J. grandiflorum* L. Blanco in describing *Nyctanthes Sambac* Blanco in Fl. Filip. 9 (1837) calls the leaves compound and mentions three pairs of leaflets. Of course, he had something entirely different from *Jasminum sambac* (L.) Aiton in mind.

This is probably only an oversight on the part of Dr. Merrill because his identified specimens of *J. sambac* from the Philippine Islands accord with *J. sambac* from China and India, as we interpret it, by having simple, opposite leaves.

24. *Jasminum multiflorum* (Burman f.) Andrews, Bot. Repos. VIII. t. 496 (1807).—Heyne apud Roth, Nov. Pl. Sp. 6 (1821).—Merrill, Fl. Manila, 366 (1912); Enum. Philipp. Flow. Pl. III. 307 (1923).

Nyctanthes multiflora Burman f., Fl. Ind. 5. t. 3, f. 1 (1768).

Nyctanthes pubescens Retzius, Obs. v. 9 (1789).

Jasminum pubescens Willdenow, Sp. Pl. i. 37 (1797).—Roxburgh, Fl. Ind. i. 90 (1820).—DeCandolle, Prodr. viii. 302 (1844).—C. B. Clarke in Hooker f., Fl. Brit. Ind. iii. 592 (1882).—Hemsley in Jour. Linn. Soc. xxvi. 80 (1889).—Léveillé in Fedde, Rep. Spec. Nov. xiii. 149 (1914).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Mogorium pubescens Lamarck, Encycl. Méth. iv. 213 (1797).

Jasminum Esquirolii Léveillé in Fedde Rep. Spec. Nov. x. 147 (1911).—
Syn. nov.

K w a n g s i : Hin Yen, R. C. Ching, no. 6667, August 4, 1928 (AA). K w a n t u n g : Canton, Central Park, Y. Tsiang, no. 1574, Nov. 28, 1929 (AA, NY); probably on Canton Christian College Campus, Canton, G. W. Groff, Herb. no. 11501, date lacking (C). K w e i c h o w : Hang-Tong, J. Esquirol, no. 729, June 1906 (arbrisseau; fleurs blanches) (AA, isotype of *J. Esquirolii*).

In all three treatments of the Chinese Jasminums the authors have treated this species under the name *J. pubescens* Willd. This name was based on a transfer to the genus *Jasminum* of a species named *Nyctanthus pubescens* Retzius described in 1789. However, Burman f. in 1768 (twenty-one years earlier) described *Nyctanthes multiflorum* which is synonymous. Andrews made the transfer of *Nyctanthes multiflora* to *Jasminum multiflorum* in 1807. However, with the exception of Heyne (apud Roth) in 1821 and later Merrill in 1912 and 1923, the synonym *J. pubescens* Willd. was used universally in botanical literature.

Léveillé's *Jasminum Esquirolii* described in 1911 is also a synonym according to the isotype in this herbarium.

25. *Jasminum coarctatum* Roxburgh, Fl. Ind. i. 91 (1820).—DeCandolle, Prodr. viii. 308 (1844).—Chung in Mem. Sci. Soc. China, i. 216 (1924).

Jasminum reticulatum Wallich, Cat. no. 2869 (1829), nomen.—De Candolle, Prodr. viii. 303 (1844).

Y u n n a n : South Road, Szemao, alt. 1525 m., A. Henry, nos. 11653 and 11653A (climber with white flowers) (AA, NY); Red River Valley near Manpan, alt. 900 m., A. Henry, no. 10887 (shrub 3 m. with white flowers) (AA); near Muang Hun plain, between Muang Hun and Muang Hai, alt. 1290 m., J. F. Rock, no. 2416, Feb. 13, 1922 (AA); climber on ridge near Szemao, between Muang Hing and Szemao and the Szemao hills proper, alt. 1650 m., J. F. Rock, no. 2763, March 3, 1922 (AA); same locality, J. F. Rock, no. 2781, March 9, 1922 (AA). A s s a m : precise locality lacking, Colonel F. Jenkins (G).

26. *Jasminum amplexicaule* Buchanan-Hamilton in Wallich, Cat. no. 2853 (1829), nomen.—G. Don, Gen. Syst. iv. 60 (1837).—DeCandolle, Prodr. viii. 306 (1844).

Jasminum undulatum Ker-Gawler in Bot. Reg. vi. t. 436 (1820).—Savi, Fl. Ital. III. t. 85 (1824).—C. B. Clarke in Hooker f., Fl. Brit. Ind. III. 592 (1882).—Hemsley in Jour. Linn. Soc. xxvi. 81 (1889).—Léveillé in Fedde, Rep. Spec. Nov. XIII. 149 (1914).—Chung in Mem. Sci. Soc. China, I. 217 (1924).—Non Willd.

Jasminum aristatum Wallich, Cat. no. 2875 (1829), nomen.—DeCandolle, Prodr. VIII. 314 (1844).

Jasminum scandens Griffith, Itin. Notes, 102 (1848).—Non Vahl.

K w a n t u n g : Hainan, C. Ford, May 19, 1893 (AA, NY); roadside Hainan, near Kingchow, F. A. McClure, 2353, April 5, 1922 (vine 7 m. high, with very fragrant white flowers) (C); Hwa Die, Canton, Y. Tsiang, no. 417, May 25, 1928 (AA); in open field on way to Hwang-lung-kwan, Lonfoushan Mts., East River Region, alt. 232 m., Y. Tsiang, no. 1615, Dec. 18, 1928 (scandent shrub with white flowers) (AA); in dense mixed woods, Vutzeling, Kochow, alt. 830 m., Y. Tsiang, no. 2292, May 14, 1929 (scandent shrub; leaves lustrous green above, lighter below; fruit very young greenish) (AA, NY); in open places, North Gate, Kochow, Y. Tsiang, no. 2437, May 23, 1929 (shrub with white flowers) (NY); in open places along side of West Lake, Liuchow, Y. Tsiang, no. 2573, June 3, 1929 (scandent shrub with white flowers) (AA, NY); Honan Island, C. O. Levine, no. 1209, August 25, 1917 (G); Hoihow, F. A. McClure, no. 7618, Oct. 12, 1921 (vine 1–7 meters; flowers white, blue, lavender, very fragrant; fruit black) (AA); Honam Island, C. O. Levine, no. 208, Dec. 30 (1916) (AA); precise data lacking, Mrs. S. W. Williams (G, NY). British India: Mt. Sylhet, Assam, N. Wallich, no. 2853 (AA, photo. of type from Br).

Most of the previously determined material of *J. amplexicaule* Buch.-Ham. has been labeled either *J. undulatum* Willd. or *J. undulatum* Ker-Gawl. Willdenow described the first and original *J. undulatum* in Spec. Pl. which material later was found to be conspecific with *J. sambac* Ait. Ker-Gawler with material distinctly different illustrated and discussed the present species under the name *J. undulatum* thinking it to be the same. Later after the original *J. undulatum* of Willd. had been transferred to *J. sambac* botanists encountering the material illustrated by Ker-Gawler continued calling it *J. undulatum*, accrediting, however, the authorship to Ker-Gawler. Under the present International Rules this latter name is invalidated being a later homonym and it is necessary to accept the name *J. amplexicaule* proposed by Buchanan-Hamilton in 1829, which up to this time has been considered a synonym of Ker-Gawler's species.

26a. *Jasminum amplexicaule* Buch.-Ham. var. *elegans* (Hemsl.). comb. nov.

Jasminum undulatum Ker var. *elegans* Hemsley in Jour. Linn. Soc. xxvi. 81 (1889).

K w a n t u n g : Pakhoi, *Playfair* (ex Hemsley, l. c.).

Hemsley in the original description of this variety cited material from both Kwantung and Formosa. In the herbarium of the Arnold Arboretum, no material from Kwantung can be found. However, Wilson's nos. 10296 and 11132 and Henry's no. 639 from Formosa all representing this variety are available at the Arnold Arboretum.

LISTS OF COLLECTORS NUMBERS

- | | |
|--|---|
| AITCHISON, J. E. T. | CLEMENS, J. & M. S. |
| 289. <i>J. humile</i> | 3448. <i>J. lanceolarium</i> |
| D'ARGY, CH. | DUCLOUX, F. |
| ——. <i>J. floridum</i> | 6. <i>J. Beesianum</i> |
| BOCK, C. & A. v. ROSTHORN | 58. <i>J. polyanthum</i> |
| 163. <i>J. floridum</i> | 112. <i>J. dumicolum</i> |
| 1151. <i>J. floridum</i> | 165. <i>J. Mesnyi</i> |
| CAVALERIE, J. | 483. <i>J. Beesianum</i> |
| 3038. <i>J. sinense</i> | 800. <i>J. polyanthum</i> |
| 3912. <i>J. polyanthum</i> | 7175. <i>J. Mesnyi</i> |
| ——. <i>J. Prainii</i> | ESQUIROL, J. |
| CHIAO, C. Y. | 729. <i>J. multiflorum</i> |
| 2583. <i>J. nudiflorum</i> | 887. <i>J. lanceolarium</i> var. <i>puberulum</i> |
| CHING, R. C. | ——. <i>J. polyanthum</i> |
| 1890. <i>J. lanceolarium</i> var. <i>puberulum</i> | FABER, ERNST |
| 3313. <i>J. lanceolarium</i> | 47. <i>J. urophyllum</i> |
| 5175. <i>J. anastomosans</i> | FANG, W. P. |
| 5394. <i>J. sambac</i> | 788. <i>J. floridum</i> |
| 5970. <i>J. lanceolarium</i> var. <i>puberulum</i> | 2196. <i>J. urophyllum</i> |
| 6282. <i>J. lanceolarium</i> | 4239. <i>J. floridum</i> |
| 6667. <i>J. multiflorum</i> | 5666. <i>J. lanceolarium</i> |
| 6954. <i>J. lanceolarium</i> | FORD, C. |
| 7023. <i>J. sinense</i> | 113. <i>J. microcalyx</i> |
| 7521. <i>J. pentaneurum</i> | ——. <i>J. amplexicaule</i> |
| CHUN, W. Y. | ——. <i>J. lanceolarium</i> |
| 3088. <i>J. lanceolarium</i> | ——. <i>J. lanceolarium</i> |
| 3468. <i>J. floridum</i> | ——. <i>J. pentaneurum</i> |
| 3572. <i>J. floridum</i> | ——. <i>J. sinense</i> |
| 3845. <i>J. lanceolarium</i> var. <i>puberulum</i> | FORREST, G. |
| 5670. <i>J. lanceolarium</i> var. <i>puberulum</i> | 2021. <i>J. Beesianum</i> |
| 6344. <i>J. pentaneurum</i> | 4658. <i>J. polyanthum</i> |
| 6911. <i>J. lanceolarium</i> | 4659. <i>J. humile</i> |
| 7470. <i>J. lanceolarium</i> | 4683. <i>J. officinale</i> f. <i>grandiflorum</i> |
| 30472. <i>J. pentaneurum</i> | 5529. <i>J. heterophyllum</i> var. <i>subhumile</i> |
| CHUNG, H. H. | 7861. <i>J. sinense</i> |
| 959. <i>J. sinense</i> | 7926. <i>J. dumicolum</i> |
| 3585. <i>J. lanceolarium</i> var. <i>puberulum</i> | 8072. <i>J. lanceolarium</i> |
| 3836. <i>J. sambac</i> | 8094. <i>J. dumicolum</i> |
| | 8136. <i>J. urophyllum</i> var. <i>Wilsonii</i> |
| | 9346. <i>J. dumicolum</i> |

9531. *J. dumicolum*
 9744. *J. Mesnyi*
 9757. *J. dumicolum*
 9761. *J. polyanthum*
 9873. *J. heterophyllum* var. *subhumile*
 9955. *J. Mesnyi*
 9990. *J. heterophyllum* var. *glabricorymbosum*
 10066. *J. Beesianum*
 10107. *J. officinale*
 11037. *J. heterophyllum* var. *glabricorymbosum*
 11177. *J. heterophyllum* var. *glabricorymbosum*
 11472. *J. heterophyllum* var. *glabricorymbosum*
 11667. *J. Seguinii*
 11827. *J. lanceolarium*
 13832. *J. humile*
 13834. *J. nudiflorum* var. *pulvinatum*
 14478. *J. nudiflorum* var. *pulvinatum*
 15605. *J. Seguinii*
 15720. *J. dispernum*
 16193. *J. nudiflorum* var. *pulvinatum*
 18330. *J. Seguinii*
 18927. *J. humile*
 19251. *J. humile*
 19296. *J. officinale*
 19666. *J. nudiflorum* var. *pulvinatum*
 20004. *J. nudiflorum* var. *pulvinatum*
 20417. *J. officinale*
 23166. *J. Seguinii*
 GAMME, G. A.
 ——. *J. officinale* f. *grandiflorum*
 GING, T. S.
 5196. *J. sambac*
 GIRALDI, J.
 1519. *J. Giraldii*
 ——. *J. Giraldii*
 GROFF, G. W.
 11501. *J. multiflorum*
 HANDEL-MAZZETTI, H.
 20. *J. Beesianum*
 5827. *J. coffeinum*
 8613. *J. Mesnyi*
 10649. *J. lanceolarium* var. *puberulum*
 11010. *J. sinense*
 HELFER, J. W.
 3718. *J. officinale* f. *grandiflorum*
 HENRY, A.
 940. *J. lanceolarium*
 2700. *J. floridum*
 2729. *J. lanceolarium* var. *puberulum*
 3000. *J. lanceolarium* var. *puberulum*
 3669. *J. lanceolarium* var. *puberulum*
 4469. *J. sinense*
 4562. *J. lanceolarium* var. *puberulum*
 6288. *J. floridum*
 8456. *J. anastomosans*
 9107. *J. heterophyllum* var. *glabricorymbosum*
 9107A. *J. heterophyllum* var. *glabricorymbosum*
 9107B. *J. heterophyllum* var. *glabricorymbosum*
 9319. *J. Mesnyi*
 9319A. *J. Mesnyi*
 9433. *J. nintooides*
 9433A. *J. nintooides*
 9433B. *J. nintooides*
 9581. *J. Seguinii*
 9581B. *J. Seguinii*
 9581C. *J. Seguinii*
 9657. *J. sinense*
 9657A. *J. sinense*
 9657B. *J. sinense*
 10314. *J. polyanthum*
 10314A. *J. polyanthum*
 10314B. *J. polyanthum*
 10634A. *J. dumicolum*
 10887. *J. coarctatum*
 11656. *J. polyanthum*
 11708. *J. dumicolum*
 11653. *J. coarctatum*
 11653A. *J. coarctatum*
 11713. *J. lanceolarium*
 11969. *J. anastomosans*
 12661. *J. Seguinii*
 12661A. *J. Seguinii*
 13354. *J. sinense*
 13397. *J. officinale* f. *grandiflorum*
 ——. *J. floridum*
 HENRY, B. C.
 22171. *J. microcalyx*
 HERS, J.
 2440. *J. Giraldii*
 Ho, H. T.
 60041. *J. pentaneurum*
 HOOKER, J. D.
 ——. *J. humile*
 ——. *J. dispernum*
 HOOKER, W. J.
 Cat. no. 12246. *J. officinale* f. *grandiflorum*

- HU, H. H.
426. *J. lanceolarium* var. *puberulum*
1065. *J. lanceolarium*
- HUI, W. T.
202. *J. lanceolarium* var. *puberulum*
- INAYAT,
——. *J. officinale* f. *grandiflorum*
- JENKINS, COLONEL
——. *J. coarctatum*
- KANJILAL, U.
4656. *J. dispersum*
- KATSUMATRA,
5406. *J. anastomosans*
- KENG, Y. L.
218. *J. lanceolarium* var. *puberulum*
- KESHAVANAM,
657. *J. officinale* f. *grandiflorum*
- KING, DR. G.
220. *J. dispersum*
——. *J. dispersum*
- LABORDE, J.
——. *J. sinense*
- LEVINE, C. O.
208. *J. amplexicaule*
910. *J. sambac*
1209. *J. amplexicaule*
2016. *J. pentaneurum*
3107. *J. lanceolarium*
3180. *J. pentaneurum*
3320. *J. sinense*
- LEVINE, C. O. & G. W. GROFF
42. *J. pentaneurum*
163. *J. lanceolarium*
- LIMPRICHT, W.
2006. *J. Beesianum*
2689. *J. Giralddii*
- MAIRE, E. E.
108. *J. Beesianum*
199. *J. Mesnyi*
245. *J. humile*
253. *J. polyanthum*
451. *J. humile*
3310. *J. Beesianum*
3352. *J. officinale*
7188. *J. officinale* f. *grandiflorum*
7417. *J. Beesianum*
——. *J. Beesianum*
——. *J. humile*
——. *J. humile*
- McCLURE, F. A.
2353. *J. amplexicaule*
7595. *J. microcalyx*
7618. *J. amplexicaule*
9193. *J. anastomosans*
- MELL, R.
62. *J. lanceolarium*
215. *J. pentaneurum*
922. *J. pentaneurum*
- MERRILL, E. D.
10693. *J. lanceolarium*
- MESNY, W.
21211. *J. Mesnyi*
- MEYER, F. N.
1817. *J. floridum*
- PARKER, R. N.
2979. *J. officinale* f. *grandiflorum*
——. *J. dispersum*
——. *J. humile*
——. *J. officinale*
- PRAIN, Dr. D.
892. *J. lanceolarium*
- PURDOM, WM.
368. *J. Giralddii*
907. *J. Giralddii*
908. *J. Giralddii*
- RAM, BIS
124. *J. dispersum*
147. *J. humile*
326. *J. dispersum*
360. *J. humile*
452. *J. officinale*
460. *J. dispersum*
462. *J. humile*
- RAWAT, C. S.
76. *J. dispersum*
- ROCK, J. F.
2416. *J. coarctatum*
2440. *J. Seguinii*
2507. *J. anastomosans*
2611. *J. anastomosans*
2763. *J. coarctatum*
2781. *J. coarctatum*
2829. *J. Mesnyi*
2934. *J. lanceolarium*
3016. *J. dispersum*
3026. *J. heterophyllum* var. *glabricorymbosum*
3069. *J. lanceolarium*
3190. *J. officinale*
3216. *J. Beesianum*
3244. *J. officinale*
3293. *J. humile*
3312. *J. officinale*
3879. *J. heterophyllum* var. *glabricorymbosum*
3955. *J. heterophyllum* var. *glabricorymbosum*
4509. *J. stephanense*
6214. *J. Seguinii*
7833. *J. lanceolarium*
7894. *J. dumicolum*

8033. *J. heterophyllum* var. *glabricorymbosum*
 8292. *J. heterophyllum* var. *glabricorymbosum*
 8539. *J. heterophyllum* var. *glabricorymbosum*
 8896. *J. nudiflorum* var. *pulvinatum*
 10602. *J. heterophyllum* var. *glabricorymbosum*
 14653. *J. humile*
 14797. *J. humile*
 15035. *J. humile*
 ROYLE, DR. J. F.
 ——. *J. officinale*
 RUSE, L. F.
 135. *J. lanceolarium*
 SCHNEIDER, C. K.
 32. *J. Mesnyi*
 486. *J. Mesnyi*
 702. *J. officinale*
 905. *J. Beesianum*
 973. *J. Beesianum*
 1137. *J. Seguinii*
 1302. *J. humile*
 1474. *J. officinale*
 2082. *J. Beesianum*
 2150. *J. Seguinii*
 3199. *J. Beesianum*
 3222. *J. humile*
 3264. *J. humile*
 4091. *J. humile*
 SCHOCH, O.
 18. *J. polyanthum*
 36. *J. humile*
 206. *J. officinale*
 207. *J. Beesianum*
 SEGUIN, J.
 2354. *J. Seguinii*
 SKATCHKOV, C. A.
 ——. *J. floridum*
 SMITH, HARRY
 1583. *J. Mesnyi*
 1622. *J. polyanthum*
 1886. *J. Beesianum*
 1890. *J. humile*
 2463. *J. humile*
 5508. *J. nudiflorum*
 STEWART, R. R.
 2467. *J. humile*
 6228. *J. officinale* f. *grandiflorum*
 STRACHEY, R. & J. E. WINTERBOTTOM
 1. *J. humile*
 2. *J. humile*
 5. *J. officinale* f. *grandiflorum*
 6. *J. dispernum*
 TAK, TSANG WAI
 16718. *J. lanceolarium*
 TÉN, SIMEON
 99. *J. heterophyllum* var. *glabricorymbosum*
 131. *J. Seguinii*
 375. *J. humile*
 499. *J. Beesianum*
 515. *J. humile*
 THOMSON, T.
 ——. *J. dispernum*
 ——. *J. humile*
 ——. *J. officinale*
 To, AH
 3177. *J. pentaneurum*
 TSIANG, Y.
 417. *J. amplexicaule*
 1143. *J. pentaneurum*
 1490. *J. pentaneurum*
 1574. *J. multiflorum*
 1615. *J. amplexicaule*
 2221. *J. anastomosans*
 2244. *J. anastomosans*
 2244A. *J. pentaneurum*
 2292. *J. amplexicaule*
 2437. *J. amplexicaule*
 2544. *J. anastomosans*
 2573. *J. amplexicaule*
 2970. *J. lanceolarium*
 3005. *J. lanceolarium*
 Tso, C. L.
 21001. *J. lanceolarium* var. *puberulum*
 TSU, L. F.
 629. *J. floridum*
 WALLICH, N.
 2853. *J. amplexicaule*
 WANG, Y. K.
 321. *J. pentaneurum*
 1832. *J. pentaneurum*
 3206. *J. lanceolarium*
 3219. *J. lanceolarium*
 WIGHT, ROBERT
 1752. *J. officinale* f. *grandiflorum*
 WILSON E. H. (ARNOLD ARBORETUM EXPED.)
 598. *J. Giraldii*
 781. *J. lanceolarium*
 781A. *J. lanceolarium* var. *puberulum*
 789 in part. *J. floridum*
 1122. *J. urophyllum*
 2807. *J. officinale*
 2808. *J. sinense*
 2809. *J. humile*
 ——. *J. humile*

WILSON, E. H. (VEITCH EXPED.)

83. *J. floridum*

1018. *J. lanceolarium* var. *puberulum*

1499. *J. urophyllum* var. *Wilsonii*

1576. *J. sinense*

4074. *J. Beesianum*

4074A. *J. officinale*

4075. *J. urophyllum* var. *Wilsonii*

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4077. *J. humile*

4078. *J. humile*

5042. *J. lanceolarium*

WILLIAMS, MRS. S. W.

——. *J. amplexicaule*

WRIGHT, C.

——. *J. lanceolarium*

ZIMMERMANN, R.

296. *J. nudiflorum*